

# Railway Age Gazette

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The chief significance of the recent decision of the United States District Court in the suit of the government to divest the Southern Pacific of the Central Pacific lies in the court's failure to confuse form with substance. Although the two constituent roads have separate corporate organizations, they were built

### Southern Pacific Retains Central Pacific

by the same interests, have always been operated as a single system and both would be disastrously crippled if separated. From an economic point of view the dissolution would be indefensible, as is evidenced by the fact that not a single shipper appeared in favor of the government's petition. From the point of view of law the court held that the Sherman anti-trust act was intended to restore competition that had been destroyed but not to create it where it never existed. If legal grounds could be found to justify dissolution by the Southern Pacific-Central Pacific, it would be difficult to find legal grounds for holding many of the railway systems of this country together.

C. A. Seley calls attention, in an article on another page, to the fundamental weakness in the mechanical engineering

### A Great Opportunity

department of American railroads. The successful mechanical engineer must be an executive. He may be an expert designer along some one or more lines, but his big job is to direct and supervise the work of other experts. The mechanical engineer should be large enough to be above departmental activities and jealousies and should be capable of directing his staff from the standpoint of one having a broad vision of the best interests of the railroad as a whole; but he cannot do this unless given an adequate staff. The railroads of this country have wasted a great deal of money by the "penny wise, pound foolish" policy of trying to hold down expenses in this department unreasonably. As a result it has been common practice to design equipment and put it in service without any real study of the conditions under which it was to be used. Even then, in many cases, unless it had failed badly, the designing department has made no effort to follow it up in service with a view to improving the design for future orders.

Instead of reaching out with feelers in all directions to anticipate future needs and development the department has been more or less caged in and, except for a limited number of notable exceptions, has followed well along in the rear of progress. What a wonderful field for aggressive men of real vision who can awaken their managements to the real opportunities and can then direct a staff of experts to secure real results! Keeping the nose on the grindstone of details has made some really big men miss the opportunity of their lives.

Analysis of the statistics regarding the car shortage shows that many misconceptions obtain regarding the true car situation.

### Some Facts About the Car Shortage

Many call the present condition the worst which ever existed. On the contrary, the net car shortage February 6, 1907, was 137,847, or almost 7 per cent of the total freight car supply, while the largest net shortage reported during the present period of congestion, viz.: 124,973 cars on March 1, 1917, was only about 5 per cent of the total freight car supply. One of the stock complaints against the railways has been regarding the alleged "inefficiency" with which they have handled their cars recently. Is that complaint justified? The real test of efficiency is the amount of freight handled with the available supply of equipment. The available supply has been seriously impaired by the congestion of loaded cars on the Atlantic Seaboard, due to the shortage of ships to take export traffic away. If it had not been for this condition the car shortage would have been much smaller. In spite of the fact that the congestion at the ports has greatly reduced the number of cars available, the figures show that the railways have been moving more freight than ever before in their history. The largest traffic ever handled prior to that of the fiscal year 1916 was in the fiscal year 1913. The total freight business handled in 1913 was 14 per cent greater than that handled in 1912. The total freight traffic handled in 1916 was 12½ per cent greater than that handled in 1913, and the total freight business handled thus far during the fiscal year 1917 has been from 7 to 19 per cent, month by month, heavier than that handled in the corresponding months of the fiscal year 1916. It should be remembered that the railways have

had to handle this greatly increased traffic with a relatively small increase in equipment, because it has been impossible to get needed cars and locomotives promptly. Furthermore, the recent increases in business came suddenly after a long period of decreasing business. The freight traffic of the fiscal year 1916 was 23 per cent greater than that of 1915, and that of 1917 may prove to be 40 per cent greater than that of 1915. Is it any wonder, in view of these facts, that there has been congestion, and is it fair to charge the railways with inefficiency in the handling of their equipment?

### BEGIN ELIMINATING EXCESSIVE HOURS IN TRAIN SERVICE

THERE was for some time wide disagreement as to the correct interpretation of the Adamson law. The leaders of the brotherhoods said to their own followers that it was a wage law and to the public that it was a law to regulate hours of work. The railways said that it was a law to regulate wages. The Supreme Court of the United States says that it is both a regulation of hours and a regulation of wages. All of these views, including that of the Supreme Court, have become of comparatively little importance since the railway managers agreed to change the wage schedules by inserting the words "eight hours" in them where heretofore they have read "ten hours."

The effect of this, if nothing more were done, would be merely to advance wages. There would be absolutely no change in working hours. The railway managements ought, however, to do something more. It is impracticable to put all freight train runs on an eight-hour basis. It is, however, practicable to adopt at once the policy of applying all reasonable measures which will tend to reduce the number of hours in excess of eight which employees in train service are kept on duty. This policy, although not required by the Adamson law, should be adopted. The great objection made, first, to the demands of the men, and then to the Adamson law, was that their sole purpose seemed to be to increase wages under the guise of reducing hours of work. Many persons who have vigorously opposed the demands of the men and denounced the passage of the Adamson law have conceded that if a bona fide change in hours of work had been under consideration the employees' movement would have been a much more difficult one fairly and honestly to oppose. They admitted these things because well-informed persons know that many employees in yard and train service are kept on duty for long, and in many cases, excessive hours, and that furthermore, the irregularity of their hours of service is great, and in many cases needlessly great.

What is a reasonable number of consecutive hours for a man to work? That depends on many things: for example, on how hard his work is, and on how many days a month he works. One thing, however, is beyond dispute. The public opinion of our time will not permanently uphold a system of railway management which results in many men being kept on duty, not merely eight or ten consecutive hours, but as much as twelve, fourteen and fifteen hours. The spokesmen of the brotherhoods, in citing examples of men who work such long hours, have represented their cases as typical. This is not true. But the number of men who do work extremely long hours is sufficient to constitute a strong indictment of our present system of handling trains. Congress has passed a law making eight hours the basis for computing wages. The result is that the employees are going to receive a large increase in pay. Suppose that the railway managements go on operating trains as they have in the past. Is it not highly probable that in that case in a comparatively short time these employees will be back demanding legislation absolutely limiting the number of hours they may be required to work, and at the same time assuring to them the same daily wages that they will earn under the operation of the

Adamson act? And if they ask for such legislation, is it not probable they will get it?

The problem presented to the railway managements is that of reducing as rapidly as possible the number of cases where men are worked for long hours while at the same time conserving the economies in operation which have been secured by increases in freight train loads. This problem is one of extreme difficulty. It is, however, one which must be faced. Unless the railway managements voluntarily adopt all reasonable and practicable measures to reduce the hours of work of employees in train service who habitually are kept on duty more than, say, ten hours, they will blindly invite further harmful agitation and costly legislation. Public opinion has been with the railways in the controversy which has just closed because they have been in the right. The managements should not cause public opinion to be against them in the next controversy by taking a course which will put them in the wrong.

### CLEARANCE LEGISLATION

AT its convention last week the American Railway Engineering Association formally ratified the clearance diagrams and dimensions adopted a year ago, thus taking a distinct forward step in harmonizing the differences in opinion among railway men regarding this important subject. Elsewhere in this issue we abstract the revised clearance regulations which the Public Utilities Commission of Illinois has just issued superseding those of a year ago. Both of these standards refer to new construction alone. However, they refer to only one phase of the problem. Clearance is the space between two objects, in this instance between railway structures and equipment. As the committee of the American Railway Engineering Association noted, any attempt to establish a clearance diagram without at the same time establishing a corresponding maximum width for equipment will be wholly futile. As equipment now moves freely from one road to another and from one state to another any attempt by an individual state to limit the size of the equipment operated within its borders will at once interfere with the free movement of traffic. The problem is, therefore, one for national rather than state consideration.

In spite of the agitation for and the danger of clearance legislation during the last few years, the mechanical department, prompted largely by the demands of the traffic officers, has continued to build cars of increasingly greater dimensions. This has been brought about largely by the development of the automobile industry and the desire for cars of the greatest possible width. At the same time this increase in the width of equipment has only served to make the clearance problem more acute and to accentuate the demand for legislation.

The increase in the width of cars has been particularly marked during the past year. A comparison of a considerable number of box cars built recently shows a width in excess of 10 ft. to be fairly common, while several western roads have built cars 10 ft. 6 in. wide and one road has gone to a maximum width of 10 ft. 8½ in. Similar conditions are found in the construction of stock cars. A number of roads are building this type of equipment 10 ft. 6 in. wide and one road has built cars 10 ft. 10 in. wide. While clearances on roads building equipment of these extreme dimensions may be sufficient to enable these cars to be operated over their lines readily, it is practically impossible to confine the movements of these cars to the lines of the owning roads and they soon find their way over other lines where equally wide clearances do not obtain. It is this failure of individual railway managements to consider conditions on other roads which is creating the demand for clearance legislation. If such legislation is to be made effective it must apply to equipment as well as structures, for otherwise any standards

relative to structures, however adequate they may be at the present time, will soon become obsolete and inadequate. Railway men differ regarding the extent to which the size of equipment should be limited by agreement among the railways or by legislation, as a matter of public policy, but there can be no argument regarding the fact that clearance regulations which fix the limits of only one of the two variables are ineffective.

### THE STATE PUBLIC UTILITY COMMISSIONS

IT is generally recognized that regulation of railways and other public utilities is pretty sure, in the long run, to do more harm than good to both the utilities and the public, unless it is fairly and intelligently done. It is also generally recognized that regulation is not likely to be fair and intelligent, unless it is delegated to experts. Whether the regulating authorities will be experts will depend upon their mode of selection, on their previous occupations, their compensation, the length of time they are kept in service, and so on. There are now 46 states which have railway or public utility commissions. Are these commissions expert bodies? Have their members had the training and experience, before becoming members of the commissions, necessary to equip them for their duties, or have they been, or are they likely to be, kept in office long enough to become experts?

An attempt is made in an article which appears elsewhere in this issue to throw light on these questions. The information given regarding the members of the state commissions includes the facts as to whether they are elective or appointive, as to their previous occupations, the salaries they are paid, the terms of office for which they are chosen, and the length of time they already have been members of the commissions. Certain information also is given which may throw light on the qualifications of the principal employees of these bodies. All the state commissions, except that of Montana, furnished the information requested.

It would seem that the most important qualification which could be possessed by a man chosen to participate in the regulation of a class of business concerns would be some special knowledge of the business of that class of concerns. This consideration does not appear to carry much weight, however, in the selection of members of railroad commissions. In 1909 the *Railway Age Gazette* made a study of the personnel of the state commissions as they were constituted at that time. There were then 41 commissions, having a total of 120 members. Of these 42, or a little over one-third, were lawyers, and 13 had been railway officers or employees. The present study covers 47 commissions in 46 states (New York having two commissions.) Of their total of 158 members, no less than 79, or exactly one-half, are lawyers, while the number of former railway officers or employees has been reduced to 10. It is perfectly evident that so many lawyers have not been chosen because lawyers by their training and experience are peculiarly qualified for the regulation of public utilities. On the contrary, the selection of so many lawyers undoubtedly is due to the fact that lawyers, as a class, are more active in politics than any other class of business or professional men, and that the choice of the members of state commissions has been dictated largely by political considerations. Out of this fact arises the tendency of so many state commissions to be governed largely by political considerations in the exercise of their functions. Of the 10 commissioners reported as having had railway experience, only four had risen to the rank of officers. Thirteen commissioners have been farmers and the same number public officers. The experience of the rest has been divided between a wide variety of business and professional occupations.

The authoritative writers upon the subject of public util-

ity regulation have agreed that well-equipped commissioners are more likely to be secured through appointment by the governors than through popular election. Eight years ago the number of elective commissions was 22 and the number of appointive commissions 19. The number of elective commissions is still 22, but the number of appointive commissions has increased to 25. The tendency as to mode of choice seems to be in the right direction, for it probably is true that the appointive commissions are stronger in their personnel than those which are elective. It certainly cannot be said, however, that the commissioners who have been appointed always have been better than those who have been elected. In many cases the governors have been so much influenced by political consideration in making appointments that their selections, except, perhaps, from a political point of view, have not been happy.

In many instances, commissioners who are not experts when first appointed or elected will become so if allowed to serve long enough. It is, therefore, very important that the terms of office should not be too short. There has been a tendency to lengthen the terms of office. In 1909, they varied from 2 to 6 years, and averaged 4 years. They now vary from 2 to 10 years, and average 5 years. Ten states which had commissions nine years ago have since increased the terms of office, these being California, Connecticut, Illinois, Kansas, Maine, Massachusetts, Minnesota, New Hampshire, Pennsylvania and Rhode Island. There has been a corresponding increase in the number of years that the commissioners have served. Eight years ago the average number of years they had served was 3. Now it is 3 years and 9 months.

The ability of the men who will accept election or appointment is likely to depend somewhat on the salaries paid. There has been an increase in these also. Eight years ago the range of salaries was from \$1,200 in North Dakota to \$15,000 in New York. The minimum salary at present is that paid in Vermont, which is \$1,700, while the New York salary is still the maximum. Except in New York, \$5,000 was formerly the maximum, but now Indiana pays \$6,000, California and Massachusetts \$8,000, Pennsylvania \$10,000 and Illinois \$12,000, and other states which pay over \$5,000 are Missouri, New Jersey and West Virginia. The average salary of all the members of the state commissions has increased from \$4,000 eight years ago to \$4,500 at present.

There have been similar changes in the terms of office, the length of service, and the compensation of the principal employees of the commissions, such as their secretaries, rate specialists and engineers.

On the whole, there can be no question that in many states there has been an improvement, both in the laws creating the state commissions and giving them their authority, and in the personnel of their memberships and of their more important employees. Some state commissions have deteriorated to a marked degree, but on the whole, the tendency has been the other way. If the state commissions, as now constituted, were allowed to perform the duty of regulation without interference from the legislatures and politicians, it is probable that state regulation would be much more fair and intelligent than it is. Unfortunately, not only have many of the state commissions still great shortcomings as to personnel, mainly because their members are usually selected regardless of their qualifications, but they are constantly prevented from regulating the railways as wisely and fairly as they otherwise would by the passage by the legislatures of arbitrary laws, which many of the state commissions themselves do not favor. Add to these facts the further fact that there is no co-ordination or uniformity of regulation as between one state and another, or between state and federal regulation, and the indictment of state regulation is made sufficiently conclusive.

### THE APPEAL FOR AN ADVANCE IN RATES

THE granting of the wage advance demanded by the train service employees, and the decision of the United States Supreme Court upholding the constitutionality of the Adamson act, requiring this increase, were quickly followed by the presentation to the Interstate Commerce Commission of petitions from the railways asking for general advances in rates. President Rea, of the Pennsylvania Railroad, speaking for the eastern lines, urged the commission to let the proposed increase in rates on bituminous coal go into effect without issuing the usual suspension order, on the ground that an emergency exists in the railroad business. This emergency, he said, has been created by increases in the cost of almost everything that the railways have to buy.

It is not to be expected that any large advances in rates will be secured without opposition. This opposition will be based mainly on the large earnings which the railways have been making recently. Clifford Thorne, formerly chairman of the Railroad Commission of Iowa and now attorney for some shippers' associations, already has issued a statement in which he says, "the public should remember that last year the gross profits of the railways were \$9,000,000 a day, or a total of \$3,000,000,000. The net profit was \$200,000,000 more in 1916 than any previous year." He was referring to railway results in the fiscal year ended on June 30, 1916. The use of the words "gross profits" in this connection is entirely misleading. The total earnings of the railways from operation were \$3,371,000,000, but total earnings are in no sense "profits," since operating expenses and taxes annually consume from 70 to 77 per cent of them. Furthermore, there is no such phraseology known to the accounts of the Interstate Commerce Commission as "net profits." The "operating income" of the roads, which is what they have left after paying operating expenses and taxes, were almost \$200,000,000 larger in 1916 than in 1913, in which year they exceeded all previous records. But meantime, between 1913 and 1916 the investment in road and equipment increased, as the statistics of the Interstate Commission show, by about \$1,150,000,000, and if the net operating income of 1916 had not been much larger than in any earlier year, the result would have been that the percentage of net return earned would have shown a decline, as it did in 1914 and 1915. While the net operating income of 1916 broke all records, it did not represent percentage of return on the total investment in railway properties, which would be considered large in any other business. Complete figures on this subject are unavailable; but the Interstate Commerce Commission in its annual report estimated the net operating income earned on the book cost of road and equipment in 1916 at 6.35 per cent; and this is the largest estimate that any authority has made. The *Railway Age Gazette* had previously estimated the net return for the fiscal year 1916 at 5.6 per cent, and the Bureau of Railway Economics has estimated the net return earned in the calendar year 1916 at 5.9 per cent.

The year 1916 followed a series of five years, in four of which, according to the Commission's statistics, the net return had been less than 5 per cent. In 1914 it was only 4.19 per cent and in 1915 4.09 per cent. The gross and the net earnings of the railways seem large when given alone; but they do not seem relatively so large when the additional fact is stated that properties representing an investment of \$17,500,000,000 are used to make them. It is evident that an industry in which, on the highest estimate, no more than 6 1/3 per cent has ever been earned, and in which but two years ago only 4 per cent was earned, is sure to suffer greatly if suddenly subjected to a series of enormous increases in expenses without any compensating advances in rates. Now, the railway industry is suffering from great increases of expenses.

The operation of the Adamson law is causing an

increase of \$60,000,000 a year in the wages of freight train employees, effective from January 1, 1917. Large increases in wages have had to be made to other classes of employees and still further increases probably will have to be made to them as one of the results of the decision upholding the Adamson act. The railways consume about 200,000,000 tons of coal a year. Mr. Rea estimated the increase in the cost of coal to the Pennsylvania lines east of Pittsburgh at 65 cents a ton. If the average increase to the railways as a whole should amount to only 50 cents it would total \$100,000,000 a year, and if it should average only 25 cents it would total \$50,000,000 a year. The cost of materials and equipment of all kinds has advanced phenomenally. The price of rail has been increased within the last two years from \$28 to \$38 per ton. Steel passenger coaches which in 1915 cost \$12,000 at present cost \$18,000. The cost of freight cars has advanced from 50 to 100 per cent. Judge Lovett, in his testimony before the Newlands committee last week, showed that in 1913 the Union Pacific bought Mikado locomotives for \$23,600, while in February, 1917, the same engines cost \$44,000. Passenger locomotives bought in 1913 cost \$23,000, while the same locomotives bought in February of this year cost \$41,000. Taxes also continue to advance rapidly. Net operating income, after showing large increases for several months, showed declines in November and December, in spite of the fact that in those months the railways handled a record-breaking business, and also in spite of the fact that the wage increase granted by the Adamson act had not yet gone into effect.

About seven years ago, when the railways were earning a relatively large net return, but when they were also confronted with large increases in wages, taxes and other expenses, they applied to the Interstate Commerce Commission for advances in rates, on the ground that without them they would be unable to maintain reasonable net earnings. The Commission rejected their petition, largely upon the ground that the net return they already were earning was sufficient. The result in subsequent years was a steady decline in railway net return. According to the Commission's statistics, the net return earned in 1910 was 5.73 per cent; in 1911, 4.87 per cent, and in 1912, 4.62 per cent. In 1913 it recovered to 5.12 per cent, and in 1914 it declined again to 4.19 per cent, and in 1915 to 4.09 per cent. Meantime, the expansion of railway facilities came almost to a stop.

Having this recent experience in mind, may we not hope that the Commission in dealing with the question of advances in rates, as it now presents itself, will look backward less and forward more than it did in rendering its decision in the original rate advance cases.

### NEW BOOKS

*Debaters' Handbook on Government Ownership of Railroads.* By Edith M. Phelps. 201 pages. 7 1/2 in. by 5 in. Bound in cloth. Published by the H. W. Wilson Company, White Plains, N. Y. Price \$1 net.

This, the third edition, contains an exhaustive brief of the points for and against government ownership, a large bibliography, and reprints of articles of merit, outlining the present status of government ownership in this and other countries, and setting forth arguments for and against its adoption. The volume contains but little of the material contained in former editions. Many of the articles selected for reprinting have been written since the last handbook was published. The bibliography has been revised and brought down to date, and the brief and introduction have been rewritten. The book of itself is useful to those wishing to get a balanced concept of the question in concise form, and, by virtue of its list of sources of information, is equally valuable to those desiring to make an extended study of the subject.

# Our Railway and Public Utilities Regulators

Mode of Selection, Previous Occupation, Compensation and Term of Service of the State Commissioners

By Francis W. Lane

FOR several reasons there has been in recent years an increasing interest on the part of the public, and particularly of that part of the public concerned in railway operation, in the make-up of the state railway and public service commissions and in the qualifications of the members of such commissions for the duties of their positions. The influence of these commissions has in many states been largely extended by the assignment to them of regulatory powers over lines of public service with which practically every citizen is concerned. Their powers extend in many cases to minute details. Because, perhaps, of this required extension of authority in some instances, there has been a general access of activity on the part of such authorities in other states in which the determination of their functions has been left largely to the commissions themselves. Since, however, most of the state commissions were originally established primarily for the regulation of matters pertaining to railway operation, this still constitutes the field of operation with which the entire public, regardless of state lines, is most concerned. Railway managements, while recognizing the justness of what is in principle sought to be accomplished by regulation, have all along contended that there should be consistency in the application of the principle to an industry essentially interstate. Recently the ground has been taken and is now being contested that such forms of regulation as are determined to be necessary to apply to railway operation should be administered by a single body under federal authority and that the powers of the state commissions over an interstate industry should be largely curtailed or altogether abrogated.

Meanwhile, among railway officers as well as with the public, there remains a degree of concern that the state commissions, by the manner of their selection, the amount of compensation paid, the tenure of office and previous experience of their members, should be such as to enable them to fulfill their functions on an equitable and enlightened basis. The *Railway Age Gazette* in its issue for January 15, 1909, expressed this view in the following words:

"Regulation of railways by commissions has become the general policy of both the nation and the states. The work of these bodies is important, complex and difficult. It will unanimously be conceded that able men should be chosen to serve upon them. It will be conceded that whether able men will be chosen will depend largely upon the mode of appointment or election, the salaries, the term of office, etc. It will be conceded that it is desirable that the men chosen shall have special qualifications for their duties; and that if, when chosen, they lack such qualifications, they shall be kept in office long enough to acquire them, and to use them during a considerable period for the benefit of the public."

What has been said of the members of the commissions applies only in a less degree to the heads of departments and other principal employees of the commissions. They are in the position of expert advisers and executives of the commissions. Frequently their tenure of office rests upon a surer foundation than that of the commissioners themselves and they may become a somewhat permanent working body. It is important, therefore, that the qualifications, salaries and tenure of office of such employees be as adequate to the duties of the positions and as well-assured as to tenure of office as are those of the commissioners themselves.

With a view to ascertaining the present status of the state

commissions in these various aspects, letters have been addressed to the commissions of all the 46 states in which railway or public service commissions have been established. Delaware and Utah are exceptional in requiring no reports from railways or public utilities. Utah now has before its legislature a bill providing for a public utilities commission with powers covering substantially all industries of the state, large and small. Each commission was asked to furnish the following information relative to its members and principal employees: (1) Names; (2) whether elective or appointive; (3) term for which elected or appointed; (4) annual salary; (5) previous occupation; (6) number of years served. With the exception of one state (Montana) and with unimportant omissions in one or two other reports, the information requested has been furnished since January 15 by the commission of every state. The data as supplied are presented in tabular form herewith. In the case of Montana most of the data desired have been supplied from other sources.

## TWENTY-FIVE COMMISSIONS APPOINTIVE; 22 ELECTIVE

The commissioners of 24 states—25 commissions, including the two for New York state—are appointed by the governors, and those of 22 states are elected by the people. In the corresponding compilation made by the *Railway Age Gazette* in 1909 it was shown that the commissioners of 18 states were appointed by the governors and of 22 were elected by the people. Six new commissions have since been constituted. The fact, however, that there are the same number of elective commissions as in 1909 does not mean that all of the new commissions are appointive. Three, those of Idaho, Maryland and West Virginia, are appointive, and another three, those of Arizona, New Mexico and Oregon, are elective. The commissions of California, Colorado, Kansas and Missouri, which were formerly elective, are now appointive, and that of Tennessee, which was formerly appointive, is now elective. The states whose commissions are appointive are California, Colorado, Connecticut, Idaho, Illinois, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Missouri, Nevada, New Hampshire, New Jersey, New York (two commissions), Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, Washington, West Virginia and Wisconsin. The states whose commissions are elective are Alabama, Arizona, Arkansas, Florida, Georgia, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, Montana, Nebraska, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas and Wyoming. The Wyoming commission consists of the governor, state auditor and state treasurer, ex officio.

## ONE-HALF OF COMMISSIONERS ARE LAWYERS

Lawyers split the commissionships "fifty-fifty" as between that profession and all other occupations. Of 158 commissioners, 79 are lawyers and 79 are reported as having previously followed other occupations. Of these lawyers, four are reported as having once served as judges. These are: Devlin (California), Thompson (Illinois), Mills (Minnesota), Pennypacker (Pennsylvania).

Next to lawyers the largest number of commissioners reported as having followed any one previous occupation are: Farmers, 13, and public officials, 13. In addition to this number of public officials, 12 others report having held public office in addition to the occupation followed immediately pre-

ceding appointment or election to the commission. The number reported as having followed other occupations are: Railway employees, 10, with 2 additional reported as having at some time been in railway service; merchants, 6; civil engineers, 5; bankers and editors, 4 each; secretaries of railroad commission, 3; professors, 3. There is one electrical engineer, one mathematician, and one economist. Two are reported simply as business men; insurance, lumber dealer, stock raiser, two each; and one each are reported as having been engaged in the smelter business, in mining, in fruit growing, in newspaper work, in practice as a physician, in railroad construction, and in manufacturing. The list also includes a superintendent of schools, a publisher and an accountant.

Of the 10 commissioners reported as having had railway experience, there are 4 who have been railway officers, namely, Cunningham (Michigan), superintendent; Morley (Montana), auditor, Wisconsin Central; Shaughnessy (Nevada), assistant superintendent, Southern Pacific; Alexander (Wisconsin), master mechanic, Chicago, Milwaukee & St. Paul. Four commissioners, Kennedy (Alabama), Jones and Betts (Arizona), and Kendall (Colorado), report experience as traffic clerks. Williams (New Mexico) was at one time a railway conductor, and Hurdleston of Texas, and Forsyth of Wyoming, are reported as having been engaged in "railroading."

A large variety of public officers is represented in the previous occupations of the commissioners. One commissioner, Bristow of Kansas, has been United States senator; two, Yates of Illinois, and Pennypacker of Pennsylvania, have been governors of their respective states. Others have held offices of state senator, secretary of state, state treasurer, county treasurer, county attorney, county auditor, clerk of county court, county sheriff, United States marshal, city engineer, deputy sealer of weights and measures, deputy state comptroller, and member of grain appeal board.

Three professors in active educational work are members of commissions. Prof. Howard B. Shaw (Missouri) is dean of the University of Missouri in electrical engineering; Prof. Thos. W. D. Worthen (New Hampshire) is professor of mathematics at Dartmouth College; Prof. Henry R. Trumbower (Wisconsin) is professor of economics at the University of Wisconsin. P. L. Bean, chief engineer of the Maine commission, is professor of engineering.

Of the secretaries of the commissions, eight are reported as having had railway experience. These are the secretaries of the commissions of Arizona, Georgia, Nevada, Oklahoma, Oregon, South Carolina, Virginia and Washington. Nine secretaries have served as secretary of previous commissions or of other official organizations. Five secretaries were formerly business men, 4 were editors or newspaper men, 3 were lawyers and 2 were engaged in educational work as superintendent of schools and teacher, respectively.

Of the 207 employees listed in the accompanying tabulation, 45 are reported as having had railway experience. The larger proportion have been clerks in the traffic departments, who have become rate clerks of the several commissions. The range of the railway positions they have held runs, however, from clerkships up to auditor, superintendent, general freight and passenger agent, chief of tariff bureau, general agent and engineer.

#### SALARIES VARY FROM \$1,700 TO \$15,000 ANNUALLY

In 11 of the states the chairman receives a slightly greater salary than the other members of the commission. These states are Alabama, Georgia, Kentucky, Maine, Maryland, Nevada, New Hampshire, Pennsylvania, Rhode Island, Tennessee and Virginia. The extra amount is generally \$500. The average salary of all commissioners is about \$4,500. This statement is to some extent misleading unless we take into account the fact that the commissioners of three states

receive very much larger salaries. In Illinois five commissioners receive \$12,000 each, in New York ten commissioners receive \$15,000 each, and in Pennsylvania seven commissioners receive \$10,000 each; the average salary for the remaining states is \$3,150. In Wyoming the commission is made up of state officials who act ex-officio and receive no additional salary as commissioners. The lowest stated salary is for Vermont, \$1,700; South Carolina comes next with \$1,900, and Mississippi and North Dakota pay \$2,000 each. In 26 of the states the annual salary is \$4,000 or less, in 15 states it is \$3,000 or less, and in 7 it is \$2,500 or less. In 13 of the states the annual salary is \$5,000 or over.

The average annual salary of the secretaries is \$2,760. The salary of rate clerks is approximately the same on an average; 11 rate clerks receive less salary than the secretary, and 11 receive more. In some cases the offices are filled by the same individual, and in some no one official acting as rate expert is reported.

The terms for which commissioners are appointed are from 2 to 10 years. However, in only two instances, Pennsylvania, in which the term is 10 years, and Maine, in which the term is 7 years, are commissioners appointed for more than 6-year terms. They are appointed for only 2 years in Arkansas and North Dakota; for 3 years in Kansas and Nevada. They are appointed for 6 years in 30 states—Arizona, California, Colorado, Connecticut, Georgia, Idaho, Illinois, Louisiana, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia and Wisconsin.

#### AVERAGE SERVICE OF PRESENT COMMISSIONERS

The average length of service of the present commissioners is 3 years and 9 months. Eleven commissioners have held office for 10 years or over. In length of service Mills, of Minnesota, leads, having served 24 years. Next are Mayfield of Texas, 19 years; Burr of Florida, 14 years, and Enloe, Tennessee, 12 years. Seven commissioners, Loveland of California, Blitch of Florida, Glasgow of Michigan, Bartine and Shaughnessy of Nevada, Hughes of Ohio, and Hannah of Tennessee, have served 10 years. The average length of service is of course reduced by the fact that a number of commissioners have been appointed since the first of January of this year, and are therefore given no rating in the column headed "years served."

Among the employees of the commissions, 26 are credited with 10 years' service or over. In length of service of its employees Minnesota easily leads all commissions. Six employees, comprising the secretary, assistant secretary, rate clerk, chief engineer, chief inspector of grain, and commissioner of weights and measures, have had terms of service ranging from 12 to 31 years. Ostrander has been secretary of the Oregon commission for 20 years; Barnes has had a similar length of service as electrical railway inspector for the New York commission, second district. Miss Riddick has been first assistant clerk of the North Carolina commission for 18 years. Stanard, rate expert, and Merritt, record clerk, of the Louisiana commission, and Hanna, statistician of the Ohio commission, are reported as having served 16 years. Sutermeister, chief engineer of grade crossings, New York Commission, second district, has served 15 years. Other employees of the various commissions have served from 10 to 12 years. On the average the secretaries have served 5 years each, and other employees have served a much shorter time.

#### PERSONNEL OF THE COMMISSIONS

The statement on the following pages presents the facts regarding the personnel of the commissions in detail.

| States and Names  | Previous occupation                           | Annual salary | Years served |
|---|---|---------------|--------------|
| <b>ALABAMA</b> Public Service Commission. Elective; term, 4 years.  |   |               |              |
| Sam P. Kennedy, Pres.   | R. R. traf., sec'y to R. R. Com.              | \$3,600       | 2            |
| B. H. Cooper, Commissioner  | Furniture dealer                              | 3,000         | 2            |
| S. P. Gaillard, Commissioner  | Lawyer  | 3,000         | 2            |
| Atticus Mullin, Secretary   | Civ. Eng. and newspaper man                   | 2,400         | 2            |
| T. L. Jennings, Rate expert   | Traf. Sol. and rate clk                       | 1,500         | 2            |
| <b>ARIZONA</b> Corporation Commission. Elective; term, 6 years.   |   |               |              |
| F. A. Jones, Chairman   | Ry. traf. man                                 | \$3,000       | 5            |
| A. A. Betts, Commissioner   | Rate expert                                   | 3,000         | 0            |
| A. W. Cole, Commissioner  | Smelterman                                    | 3,000         | 5            |
| W. N. Sangster, Sec'y-Aud.  | Ry. auditor                                   | 2,400         | 4            |
| Ben Ferguson, Engineer  | Elec. engineer                                | 2,400         | 4            |
| T. D. Cashel, Rate expert   | Ry. rate clerk                                | 2,400         | 2 mos.       |
| F. E. Banta, Supt. Insurance  | Office clerk                                  | 1,800         | 1            |
| Attorney General, Counsel   | Lawyer  |               |              |
| <b>ARKANSAS</b> Railroad Commission. Elective; term, 2 years.   |   |               |              |
| T. E. Wood, Chairman  | Editor  | \$2,500       | 2            |
| W. G. Brasher, Commissioner   | U. S. Marshal                                 | 2,500         | 0            |
| H. R. Wilson, Commissioner  | Sec'y to R. R. Com.                           | 2,500         | 0            |
| J. A. Bailey, Secretary   | Merchant                                      | 1,500         | 0            |
| H. M. Gregory, Rate expert  | G. F. & P. A., J. L. C. & E. Ry.              | 1,800         | 3            |
| <b>CALIFORNIA</b> Railroad Commission of. Appointive; term, 6 years.  |   |               |              |
| Max Thelen, President   | Lawyer  | \$8,000       | 5            |
| H. D. Loveland, Commissioner  | Lawyer and Ind. Traf. Mgr.                    | 8,000         | 10           |
| Alex. Gordon, Commissioner  | Farmer  | 8,000         | 6            |
| Edwin O. Edgerton, Commissioner   | Lawyer  | 8,000         | 5            |
| Frank R. Devlin, Commissioner   | Lawyer and judge                              | 8,000         | 2            |
| Charles R. Detrick, Sec'y   | Secretary                                     | 4,200         | 6            |
| W. P. Geary, Rate expert  | R. R. Supt.                                   | 3,600         | 6            |
| Richard Sachse, Chief engineer  | Civil engineer                                | 5,000         | 6            |
| L. R. Reynolds, Auditor   | Ry. auditor                                   | 4,200         | 6            |
| P. A. Sinsheimer, Bond expert   | Newspaper man                                 | 5,000         | 5            |
| Douglas Brookman, Attorney  | Lawyer  | 5,000         | 5            |
| Philip Bancroft, Examiner   | Lawyer  | 3,000         | 2            |
| Harry A. Encell, Examiner   | Lawyer  | 3,000         | 2            |
| Myron Westover, Examiner  | Lawyer  | 3,000         | 2            |
| Ralph A. Sollars, Official reporter   | Reporter                                      | 3,900         | 6            |
| Frederick O'Brien, Recorder   | Newspaper man                                 | 2,400         | 2            |
| F. Emerson Hoard, Gas and Elec. Eng.  | Gas and elec. eng.                            | 3,000         | 5            |
| R. W. Hawley, Hydraulic Eng.  | Hydraulic eng.                                | 3,000         | 5            |
| A. L. Wilson, Tel. and Tel. Eng.  | Tel. and tel. eng.                            | 2,700         | 3            |
| W. J. Handford, Service insp'r  | Service insp. (Ry.)                           | 2,700         | 3            |
| H. G. Mathewson, Asst. Sec'y  | Sec'y, accountant                             | 3,000         | 6            |
| Note: Number of years given for service of employees represents entire length of employment and not in all cases length of service in present position. |   |               |              |
| <b>COLORADO</b> Public Utilities Commission of. Appointive; term, 6 years.  |   |               |              |
| S. S. Kendall, Commissioner   | Ry. traf. clerk                               | \$4,000       | 6            |
| Geo. T. Bradley, Commissioner   | Mine owner                                    | 4,000         | 4            |
| M. H. Aylesworth, Commissioner  | Lawyer  | 4,000         | 2            |
| Geo. F. Oxley, Secretary  | Editor  | 2,500         | 1½           |
| F. J. Rankin, Electrical engineer   | Elec. eng.                                    | 2,400         | 2            |
| F. W. Herbert, Statistician   | Statistician                                  | 2,400         | 2            |
| C. E. Neil, Rate expert   | Ry. rate clerk                                | 2,100         | 2½           |
| <b>CONNECTICUT</b> Public Utilities Commission. Appointive; term, 6 years.  |   |               |              |
| Richard T. Higgins, Commissioner  | Lawyer  | \$5,000       | 5½           |
| John H. Hale, Commissioner  | Fruit grower                                  | 5,000         | 5½           |
| Charles C. Elwell, Commissioner   | Civil engineer                                | 5,000         | 5½           |
| Henry F. Billings, Secretary  | R. R. Com.                                    | 2,500         | 5½           |
| John F. Trumbull, Engineer  | Clerk and engineer                            | 3,000         | 1½           |
| Edward Field, Aud. and Statist.   | Accountant                                    | 2,400         | 5            |
| C. A. Russell, Attorney   | Lawyer  | 2,000         | 2½           |
| <b>FLORIDA</b> Railroad Commission of. Elective; term, 4 years.   |   |               |              |
| R. Hudson Burr, Chairman  | Merchant                                      | \$3,600       | 14           |
| N. A. Blitch, Commissioner  | Farmer  | 3,600         | 10           |
| R. C. Dunn, Commissioner  | Lawyer  | 3,600         | 8            |
| J. Will Yon, Secretary  | Teacher                                       | 2,000         | 8            |
| J. H. Tench, Rate expert  | R. R. freight agent                           | 2,000         | 5            |
| F. P. Damon, Engineer   | Civil engineer                                | 2,100         | 10           |
| G. B. Ames, Telephone engineer  | Telephone service                             | 1,500         | 2            |
| D. C. McMullen, Counsel   | Lawyer  | 4,500         | 2            |
| G. A. Engh, Statistician  | Accountant                                    | 1,800         | 1 mo.        |
| <b>GEORGIA</b> Railroad Commission of. Elective; term, 6 years.   |   |               |              |
| C. M. Candler, Chairman   | Lawyer  | \$4,000       | 8            |
| George Hillyer, Commissioner  | Lawyer  | 2,500         | 9½           |
| P. B. Trammel, Commissioner   | Banker  | 2,500         | 6            |
| J. A. Perry, Commissioner   | Lawyer  | 2,500         | 5            |
| John T. Boileau, Commis'r   | Editor  | 2,500         | 3 mos.       |
| Albert Collier, Secretary   | Ry. pass. dept.                               | 2,000         | 6 mos.       |
| J. P. Webster, Rate expert  | Ry. freight dept.                             | 4,000         | 8            |
| J. K. Hines, Counsel  | Lawyer  | 2,500         | 9½           |
| <b>IDAHO</b> Public Utilities Commission. Appointive; term, 6 years.  |   |               |              |
| A. P. Ramstedt, President   | Co. Aud., banker and tax expert               | \$3,600       | 4            |
| John W. Graham, Commissioner  | Lawyer  | 3,600         | 2            |
| A. L. Frechafer, Commissioner   | Lawyer  | 3,600         | 2            |
| E. G. Gallet, Secretary   | Co. auditor                                   | 2,400         | 4            |
| H. H. Miller, Auditor   | Accountant                                    | 2,400         | 4            |
| Leonard Way, Rate expert  | Ry. rate man                                  | 1,800         | 2            |
| <b>ILLINOIS</b> State Public Utilities Commission. Appointive; term, 6 years.   |   |               |              |
| Wm. L. O'Connell, Chairman  | Treas. Cook Co.                               | \$12,000      | 2            |
| Owen P. Thompson, Commis'r  | Circuit Judge                                 | 12,000        | 3            |
| Walter A. Shaw, Commissioner  | City eng., Chicago                            | 12,000        | 3            |
| Richard Yates, Commissioner   | Lawyer, former Gov. of Illinois               | 12,000        | 3½           |
| Frank H. Funk, Commissioner   | Farmer, stock-raiser and former State Senator | 12,000        | 3            |
| R. V. Prather, Secretary  | Produce solicitor                             | 5,000         | 2½           |
| J. H. Prior, Chief engineer   | Eng. of Design, C. M. & St. P. Ry.            | 6,000         | 2            |

| States and Names   | Previous occupation            | Annual salary | Years served |
|--|--------------------------------|---------------|--------------|
| <b>INDIANA</b> Public Service Commission of. Appointive; term, 4 years.      |                                |               |              |
| Thomas Duncan, Chairman  | Lawyer                         | \$6,000       | 3½           |
| James L. Clark, Commissioner   | Lawyer                         | 6,000         | 3½           |
| Chas. A. Edwards, Commissioner   | Banker                         | 6,000         | 1½           |
| Edwin Corr, Commissioner   | Lawyer                         | 6,000         | 1½           |
| Edwin Lee, Commissioner  | Insurance                      | 6,000         | 3½           |
| J. L. Reiley, Secretary  |                                | 3,600         | 3½           |
| Chas. A. Stewart, Chief Clerk  |                                | 3,000         | 3½           |
| H. O. Garman, Chief Engineer   |                                | 3,000         | 3½           |
| Wallace Kemp, Chief Tariff Clerk   |                                | 1,500         | 2            |
| David E. Matthews, Chief R. R. Inspector                                     |                                | 1,800         | 3½           |
| M. C. Kent, Statistician   |                                | 1,800         | 3½           |
| <b>IOWA</b> Board of Railroad Commissioners. Elective; term, 4 years.        |                                |               |              |
| John A. Guhier, Chairman   | Lawyer                         | \$3,000       | 2            |
| E. D. Chassell, Commissioner   | Newspaper and real est.        | 3,000         | ..           |
| Dwight N. Lewis, Commissioner  | Asst. Com. Counsel             | 3,000         | ..           |
| Geo. L. McCaughan, Secretary   | Clerk R. R. Com.               | 1,800         | 6            |
| Walter Condran, Chief Rate Clerk   | Rate clerk                     | 1,800         | 6 mos.       |
| E. W. Ludlow, Clerk  | Asst. rate and stat. clk.      | 1,300         | 6 mos.       |
| Lacey Walker, Statistician   | Asst. statistician             | 1,500         | 1            |
| <b>KANSAS</b> Public Utilities Commission. Appointive; term, 3 years.        |                                |               |              |
| Joseph L. Bristow, Chairman  | U. S. Senator                  | \$4,000       | 2            |
| John M. Kinkel, Commissioner   | Insurance                      | 4,000         | 4            |
| C. F. Foley, Commissioner  | Lawyer                         | 4,000         | 3            |
| Carl W. Moore, Secretary   | Insurance                      | 1,800         | 2            |
| H. O. Caster, Attorney   | Lawyer                         | 2,500         | 3            |
| T. J. Strickler, Engineer  | Engineer                       | 3,000         | 5½           |
| <b>KENTUCKY</b> Railroad Commission. Elective; term, 4 years.                |                                |               |              |
| Laurence B. Finn, Chairman   | Lawyer                         | \$3,600       | 7            |
| H. Green Garrett, Commissioner   | Lumber dealer                  | 3,000         | 5            |
| Sid. T. Douthitt, Commissioner   | Farmer                         | 3,000         | 1            |
| Richard Tobin, Secretary   | Clerk                          | 1,200         | 5            |
| W. J. J. Preuss, Rate Clerk  | R. R. clerk, L. & N.R.R.       | 1,800         | 5            |
| B. N. Gordon, Stenographer   | Lawyer                         | 1,200         | 5            |
| <b>LOUISIANA</b> Railroad Commission of. Elective; term, 6 years.            |                                |               |              |
| Shelby Taylor, Chairman  | Lawyer                         | \$3,000       | 7            |
| B. A. Bridges, Commissioner  | Tr. salesman                   | 3,000         | 4            |
| John T. Michel, Commissioner   | Secretary of State             | 3,000         | 2            |
| Henry Jastremski, Secretary  | Sec'y Bd. of Apprais.          | 2,400         | 5            |
| J. D. Standard, Rate Expert  |                                | 2,000         | 16           |
| Turner Merritt, Record Clerk   |                                | 1,320         | 16           |
| B. F. Burnett, Stenographer  |                                | 1,320         | 4            |
| <b>MAINE</b> Public Utilities Commission. Appointive; term, 7 years.         |                                |               |              |
| Benj. F. Cleaves, Chairman   | Lawyer                         | \$5,000       | 2            |
| Wm. B. Skelton, Commissioner   | Lawyer                         | 4,500         | 2            |
| Chas. W. Mullen, Commissioner  | Civil engineer                 | 4,500         | 2            |
| Geo. F. Giddings, Clerk  | Clerk, Bd. R. R. Com.          | 2,500         | 2            |
| P. L. Bean, Chief Engineer   | Prof.                          | 2,500         | 2            |
| R. A. Parker, Chief Acct.  | Accountant                     | 1,800         | 2            |
| Wm. M. Brown, Chief Inspector  | Ry. Supt.                      | 1,800         | 2            |
| J. F. McArdle, Ch. Rates and Schedules                                       | Ch. Clk. Ry. Traf. Mgr.        | 1,800         | 2            |
| <b>MARYLAND</b> Public Service Commission of. Appointive; term, 6 years.     |                                |               |              |
| Albert G. Towers, Chairman   | Lawyer                         | \$6,000       | 3½           |
| E. Clay Timanus, Commissioner  | Merchant                       | 5,000         | 4            |
| Philip D. Laird, Commissioner  | Lawyer                         | 5,000         | 4½           |
| B. T. Fendall, Secretary   | Civil engineer                 | 3,000         | 3½           |
| W. Cabell Bruce, Gen. Counsel  | Lawyer                         | 4,800         | 6            |
| Osborne I. Yellott, Asst. Gen. Counsel                                       | Lawyer                         | 3,000         | 3            |
| Chas. E. Phelps, Jr., Chief Eng.   | Electrical engineer            | 3,800         | 6            |
| <b>MASSACHUSETTS</b> Public Service Commission. Appointive; term, 5 years.   |                                |               |              |
| Frederick J. Macleod, Chairman   | Lawyer                         | \$8,500       | 5½           |
| Everett E. Stone, Commissioner   | Eng.-contractor                | 8,000         | 3½           |
| John F. Meaney, Commissioner   | Lawyer                         | 8,000         | 2½           |
| Joseph B. Eastman, Commis'r  | Sec'y, Public Franchise League | 8,000         | 2½           |
| Chas. A. Russell, Commissioner   | Lawyer                         | 8,000         | 1½           |
| Andrew A. Highlands, Secretary   | Lawyer                         | 4,000         | 3½           |
| Charles E. Mann, Exec. Sec'y   | Journalist                     | 3,500         | 13½          |
| Allan Brooks, Asst. Sec'y  | Statistician                   | 3,000         | 13½          |
| <b>MICHIGAN</b> Railroad Commission. Appointive; term, 6 years.              |                                |               |              |
| C. L. Glasgow, Chairman  | Merchant, Banker               | \$3,000       | 10           |
| C. S. Cunningham, Commis'r   | Ry. Supt.                      | 3,000         | 3            |
| A. A. Keiser, Commissioner   | Lawyer                         | 3,000         | ..           |
| W. N. Sweeney, Secretary   | County Clerk                   | 2,000         | 6            |
| James Bice, Ch. Insp. Engr.  | Ry. engineer                   | 2,000         | 18           |
| <b>MINNESOTA</b> Railroad and Warehouse Commission. Elective; term, 6 years. |                                |               |              |
| Ira B. Mills, Chairman   | District Judge                 | \$4,500       | 24           |
| Chas. E. Elmquist, Commissioner  | County Attorney                | 4,500         | 8            |
| O. P. B. Jacobson, Commis'r  | Grain Appeal Bd.               | 4,500         | 2½           |
| A. C. Clausen, Secretary   | Chief grain inspector          | 3,200         | 31½          |
| Thos. Yapp, Asst. Sec'y  | Railroading                    | 3,000         | 22½          |
| A. L. Flinn, Rate Clerk  | Railroading                    | 3,000         | 14½          |
| H. B. Warren, Statistician   | Accountant                     | 3,000         | 24           |
| J. W. Howatt, Supt. of Tel.  | Telephone work                 | 2,400         | 1½           |
| W. Kearton, Signal Engineer  | Rv. engineer                   | 2,400         | 3½           |
| D. F. Jurgensen, Chief Engineer  | Engineering                    | 4,500         | 12½          |
| H. E. Emerson, Chief Insp. of Grain  | Den. grain inspector           | 3,800         | 25½          |
| C. C. Neale, Com. Ws. and Meas.  | Scale expert                   | 2,500         | 24½          |
| <b>MISSISSIPPI</b> Railroad Commission. Elective; term, 4 years.             |                                |               |              |
| F. M. Sheppard, President  | Physician                      | \$2,000       | 7            |
| Geo. R. Edwards, Commis'r  | State Treas.                   | 2,000         | 5            |
| W. B. Wilson, Commissioner   | County Sheriff                 | 2,000         | 5            |
| James Galceran, Secretary  | Bkpr., Treas. Office           | 1,800         | 5            |
| M. C. Moore, Rate Expert   | Ry. agent                      | 2,400         | 3            |
| T. C. Russell, Asst. Rate Expert   | Rate clerk                     | 1,500         | ..           |

| States and Names   | Previous occupation             | Annual salary | Years served | States and Names   | Previous occupation        | Annual salary | Years served |
|--|---------------------------------|---------------|--------------|--|----------------------------|---------------|--------------|
| <b>MISSOURI Public Service Commission. Appointive; term, 6 years.</b>  |                                 |               |              | <b>William H. Taaffe, Ch. Div. of Capitalization</b>                           |                            |               |              |
| Wm. G. Busby, Chairman   | Lawyer                          | \$5,500       | 7 mos.       | E. J. Cheney, Ch. Div. Light, Heat and Power                                   |                            | \$4,000       | 9            |
| John Kennish, Commissioner   | Lawyer                          | 5,500         | 4            | H. C. Hasbrouck, Ch. Div. of Statistics  |                            | 5,000         | 5            |
| Howard B. Shaw, Commissioner   | Dean Mo. Univ. Elec. Eng.       | 5,500         | 4            | E. B. Rogers, Ch. Div. Tel. and Tel.   |                            | 5,000         | 9            |
| Edwin J. Bean, Commissioner  | Lawyer                          | 5,500         | 2            |  |                            | 4,000         | 6            |
| Eugene McQuillin, Commissioner   | Lawyer                          | 5,500         | 2            | <b>NORTH CAROLINA Corporation Commission. Elective; term, 6 years.</b>         |                            |               |              |
| A. Z. Patterson, Gen. Counsel  | Lawyer                          | 4,500         | 6 mos.       | E. L. Travis, Chairman   | Lawyer                     | \$3,500       | 6            |
| J. D. Lindsay, Asst. Gen. Counsel  | Lawyer                          | 3,600         | 6 mos.       | W. T. Lee, Commissioner  | Merchant                   | 3,500         | 6            |
| T. M. Bradbury, Secretary  |                                 | 3,600         | 4            | Geo. P. Pell, Commissioner   | Lawyer                     | 3,500         | 4            |
| J. L. Harropp, Chief Engineer  |                                 | 4,200         | 3½           | A. J. Maxwell, Clerk   | Business man               | 3,000         | 7            |
| C. B. Bee, Ch. Rate Expert   |                                 | 4,000         | 3½           | W. G. Womble, Rate Clerk   | Railroad                   | 2,700         | 3            |
| Geo. P. Player, Telephone Exp't.   |                                 | 2,400         | 3            | S. A. Hubbard, Bank Examiner   | Bank cashier               | 2,400         | 6            |
| J. A. Whitlow, Ch. Gas, Water, Heat and El. Dept.  |                                 | 2,400         | 2            | J. S. Griffin, Tax Clerk   | Stenographer               | 2,400         | 8            |
| T. J. Murphy, Chief Acct.  |                                 | 3,000         | 3 mos.       | Miss E. G. Riddick, 1st Asst. Clk. Stenographer                                |                            | 1,500         | 18           |
| <b>MONTANA Railroad and Public Service Commission. Elective; term, 6 years.</b>                                  |                                 |               |              | <b>NORTH DAKOTA Board of Railroad Commissioners. Elective; term, 2 years.</b>  |                            |               |              |
| J. H. Hall, Chairman   |                                 |               | 10           | S. J. Aandahl, Chairman  | Farmer                     | \$2,000       | ..           |
| E. A. Morley, Commissioner   | Railway officer                 |               | 10           | Chas. W. Bleick, Commissioner  | Farmer                     | 2,000         | ..           |
| J. E. McCormick, Commissioner  |                                 |               | ..           | M. P. Johnson, Commissioner  | Farmer                     | 2,000         | ..           |
| W. B. Rhoades, Secretary   |                                 |               | ..           | W. F. Cushing, Secretary   | Editor                     | 2,000         | 4            |
| F. E. Hoss, Auditor  |                                 |               | ..           | C. H. Olson, Reporter  | Stenographer               | 1,500         | 4            |
| W. J. Haynes, Rate Clerk   |                                 |               | ..           | H. R. Clough, Clerk  | Clerk                      | 1,200         | 5            |
| W. B. Saunders, Engineer   |                                 |               | ..           | J. A. Little, Rate expert  | Statistician               | 2,000         | 3            |
| <b>NEBRASKA State Railway Commission. Elective; term, 6 years.</b>   |                                 |               |              | F. M. Schulz, Auditor  | Accountant                 | 1,500         | 3            |
| Thomas L. Hall, Chairman   | Lawyer                          | \$3,000       | 6            | <b>OHIO Public Utilities Commission. Appointive; term, 6 years.</b>            |                            |               |              |
| H. G. Taylor, Commissioner   | Editor                          | 3,000         | 3            | Beecher W. Waltermire, Ch'man. Lawyer  |                            | \$4,500       | 2            |
| V. E. Wilson, Commissioner   | Lawyer                          | 3,000         | ..           | Lawrence K. Langdon, Com'r.  | Lawyer                     | 4,500         | 2            |
| U. G. Powell, Rate Expert  | Train desp.; later miller       | 3,000         | 10           | Oliver H. Hughes, Com'r.   | Lawyer                     | 4,500         | 10           |
| B. E. Forbes, Chief Engineer   | Civil engineer                  | 3,000         | 3            | D. H. Armstrong, Secretary   | Lawyer                     | 3,000         | ..           |
| T. A. Browne, Secretary  | Newspaper                       | 2,500         | 1            | Freeman T. Eagleson, Counsel   | Lawyer                     | 4,000         | 2            |
| <b>NEVADA, Railroad Commission of. Appointive; term, 3 years.</b>  |                                 |               |              | L. G. White, Chief Engineer  | Elec. engineer             | 4,500         | ..           |
| H. F. Bartine, Chief Comr.   | Lawyer                          | \$5,000       | 10           | E. H. Hanna, Stat. and Aud.  | Statistician               | 3,000         | 16           |
| J. F. Shaughnessy, 1st Assoc. Com'r.   |                                 |               | ..           | <b>OKLAHOMA Corporation Commission. Elective; term, 6 years.</b>               |                            |               |              |
| W. H. Simmons, 2d Assoc. Com'r.  | Asst. Supt., S. P. Co.          | 4,000         | 10           | J. E. Love, Chairman   | Farmer and stockman        | \$4,000       | 9            |
| E. H. Walker, Sec'y (Rate Exp.)  | Ry. rate man                    | 2,500         | 6            | W. D. Humphrey, Com'r.   | Lawyer                     | 4,000         | 2            |
| W. K. Freudenberger, Ch. Engr.   | Civil and elec. engineer        | 3,000         | 10           | Campbell Russell, Com'r.   | Farmer, legislator         | 4,000         | ..           |
| <b>NEW HAMPSHIRE Public Service Commission. Appointive; term, 6 years.</b>                                       |                                 |               |              | J. H. Hyde, Secretary  | Railroad                   | 2,000         | 5½           |
| Edward C. Niles, Chairman  | Lawyer                          | \$3,700       | 5½           | L. Bennett, Rate Expert  | Railroad                   | 3,600         | 9            |
| Thomas W. D. Worthen, Com'r.   | Prof. of Mathematics            | 3,500         | 5½           | J. M. Gayle, Auditor   | Railroad                   | 2,500         | 2            |
| William T. Gunnison, Com'r.  | Lawyer                          | 3,500         | 1½           | Walter Sager, Auditor  | Railroad                   | 2,750         | 2            |
| Walter H. Timm, Clerk  | Pub. serv. acct. and stat.      | 2,700         | 3            | A. I. Thompson, Engineer   | Railroad principally       | 2,750         | 7            |
| John W. Storrs, Chief Engr.  | Civil engineer                  | 2,500         | 5            | (Vacant) Telephone Engineer  |                            | 2,200         | ..           |
| <b>NEW JERSEY Board of Public Utility Commissioners. Appointive; term, 6 years.</b>                              |                                 |               |              | <b>OREGON, Public Service Commission of. Elective; term, 4 years.</b>          |                            |               |              |
| Ralph W. E. Donges, President  | Lawyer                          | \$7,500       | 4            | F. J. Miller, Chairman   | Ry. const. and mfg.        | \$4,000       | 6            |
| John J. Tracy, Commissioner  | Lawyer                          | 7,500         | 3            | H. H. Corey, Commissioner  | Sec'y of Com.              | 4,000         | 6            |
| John W. Slocum, Commissioner   | Lawyer                          | 7,500         | 2            | F. G. Buchtel, Commissioner  | Dep. Sealer Wts. and Meas. | 4,000         | ..           |
| L. Edward Herrmann, Counsel  | Lawyer                          | 5,000         | 1            | Edward Ostrander, Secretary  | Ch. clk. ry. traf. depts.  | ..            | 20           |
| Philander Betts, Ch. Eng., Util. Div.  | Elec. and mech. eng.            | 6,000         | 7            | E. W. Moreland, Eng. Dept. of Rys.   | Ry. engineer               | ..            | ..           |
| Charles A. Mead, Ch. Eng., Div. Br. and Grade Cross  | Civil engineer                  | 4,200         | 7            | F. C. Davies, Rate Clerk   | Ry. rate clerk             | ..            | ..           |
| James Maybury, Jr., Ry. Insp.  | Attorney in Ry. Claim Dept.     | 3,600         | 7            | E. T. Busselle, Tel. Engr.   | Tel. plant manager         | ..            | ..           |
| Alfred N. Barber, Secretary  | Pub. mgr. indus. corp.          | 4,000         | 7            | W. T. Neill, Elec. Engr.   | Student                    | ..            | ..           |
| <b>NEW MEXICO State Corporation Commission. Elective. One Commissioner elected every 2 years. Term, 6 years.</b> |                                 |               |              | C. J. Green, Hyd. and Elec. Eng.   | Gen. engineering           | ..            | ..           |
| Hugh H. Williams, Chairman   | Rv. conductor                   | \$3,000       | 5            | <b>PENNSYLVANIA, Public Service Commission of. Appointive; term, 10 years.</b> |                            |               |              |
| Matthew S. Groves, Com'r.  | Lumber dealer                   | 3,000         | 5            | Samuel W. Pennypacker, Ch'man. Lawyer  |                            | \$10,500      | 3½           |
| Boniface Montoya, Com'r.   | Co. sch. supt. and stock raiser | 3,000         | ..           | John S. Rilling, Commissioner  | Lawyer                     | 10,000        | 3½           |
| Edwin F. Coard, Clerk  | Asst. Sec'y Ter. of New Mexico  | 2,000         | 5            | William A. Magee, Commissioner   | Lawyer                     | 10,000        | 3½           |
| B. F. Seggerson, Rate Expert   | Ry. rate clerk                  | 2,700         | 4½           | Milton J. Brecht, Commissioner   | Supt. schools              | 10,000        | 3½           |
| Henry F. Stephens, Accountant  | Bank cashier                    | 1,800         | 4            | Michael J. Ryan, Commissioner  | Lawyer                     | 10,000        | 3½           |
| Harry S. Clancy, Law Clerk   | Asst. Atty. Gen. of New Mexico  | 1,800         | ..           | James Alcorn, Commissioner   | Lawyer                     | 10,000        | 3½           |
| <b>NEW YORK Public Service Commission, First District. Appointive; term, 5 years.</b>                            |                                 |               |              | William D. B. Ainey, Com'r.  | Lawyer                     | 10,000        | 3½           |
| Oscar S. Straus, Chairman  | Lawyer and statesman            | \$15,000      | 1            | A. B. Millar, Secretary  |                            | 5,000         | ..           |
| William Hayward, Commissioner  | Lawyer                          | 15,000        | 2            | Berne H. Evans, Counsel  |                            | 7,500         | ..           |
| Henry W. Hodge, Commissioner   | Engineer                        | 15,000        | 1            | John P. Dohoney, Inves. of Accidents   |                            | 5,000         | ..           |
| Travis H. Whitney, Com'r.  | Sec'y to Com.                   | 15,000        | 1            | Geo. P. Wilson, Chief, Bureau of Rates and Tariffs                             |                            | 5,000         | ..           |
| Charles S. Hervey, Com'r.  | Dep. Compt. City of New York    | 15,000        | 1            | F. Herbert Snow, Chief, Bureau of Eng.   |                            | 6,000         | ..           |
| James B. Walker, Secretary   |                                 | 6,000         | 1            | Coleman J. Joyce, Chief, Bureau of Accts. and Statistics                       |                            | 2,000         | ..           |
| Daniel L. Turner, Acting Chief Engineer  |                                 | 12,500        | 4 mos.       | William Hartman, Marshal   |                            | 5,000         | ..           |
| Geo. S. Coleman, Counsel   |                                 | 10,000        | 9            | <b>RHODE ISLAND Public Utilities Commission. Appointive; term, 6 years.</b>    |                            |               |              |
| Adna F. Weber, Chief Statist'n   |                                 | 7,500         | 10           | William C. Bliss, Chairman   | Lawyer                     | \$4,000       | 5            |
| Joseph Johnson, Chief of Transit Bureau  |                                 | 7,500         | 3            | Samuel E. Hudson, Commissioner   | Publisher                  | 3,500         | 5            |
| Clifton W. Wilder, Elec. Engr.   |                                 | 7,500         | 9½           | Robert F. Rodman, Commissioner   | Civil engineer             | 3,500         | 5            |
| Thos. D. Hoxsey, Sec'y Bureau Gas and Elec.  |                                 | 3,600         | 10           | John W. Rowe, Secretary  | City clerk                 | 3,000         | 5            |
| <b>NEW YORK Public Service Commission, Second District. Appointive; term, 5 years.</b>                           |                                 |               |              | George A. Carmichael, Agent  | Ry. agent                  | Time          | 5            |
| Seymour Van Santvoord, Chairman  | Lawyer                          | \$15,000      | 3            | <b>SOUTH CAROLINA, Railroad Commission of. Elective; term, 6 years.</b>        |                            |               |              |
| Devoe P. Hodson, Commissioner  | Lawyer                          | 15,000        | 4            | John G. Richards, Chairman   | Planter                    | \$1,900       | 4            |
| William Temple Emmet, Com'r.   | Lawyer                          | 15,000        | 3            | Frank W. Shealy, Commissioner  | County Clerk of Court      | 1,900         | 2            |
| James O. Carr, Commissioner  | Lawyer                          | 15,000        | 2            | James Cansler, Commissioner  | Planter                    | 1,900         | ..           |
| Frank Irvine, Commissioner   | Lawyer                          | 15,000        | 3            | J. P. Darby, Secretary   | Railroad                   | 1,800         | 5            |
| Ledyard P. Hale, Counsel   |                                 | 10,000        | 9            | M. E. Carr, Stenographer   | Stenographer               | 900           | 6            |
| Francis X. Disney, Secretary   |                                 | 6,000         | 4            | <b>SOUTH DAKOTA Board of Railroad Commissioners. Elective; term, 6 years.</b>  |                            |               |              |
| C. R. Vanneman, Ch. Div. Steam Railroads   |                                 | 4,500         | 7            | P. W. Dougherty, Chairman  | Atty. for Commission       | \$2,500       | 2            |
| C. R. Barnes, Elec. Ry. Insp'r.  |                                 | 5,000         | 20           | J. J. Murphy, Vice-chairman  | Co. auditor                | 2,500         | 4            |
| W. E. Griggs, Ch. Div. of Tariffs  |                                 | 4,000         | 10           | F. E. Wells, Commissioner  | Co. auditor                | 2,500         | ..           |
| A. H. Sutermeister, Ch. Eng. Grade Cross   |                                 | 5,000         | 15           | H. A. Ustrud, Secretary  | Supt. of schools           | 1,800         | 1½           |
|  |                                 |               |              | O. E. Sweet, Attorney  | Attorney                   | 2,500         | 2            |
|  |                                 |               |              | L. R. Bitney, Statistician   | Aud. for "Soo" Line        | 2,000         | 1½           |
|  |                                 |               |              | D. L. Kelley, Rate Expert  | Rate Dept., C.&N.W.Ry.     | 2,000         | 4            |
|  |                                 |               |              | Ross Miller, Engineer  | Engineer, C. & N.W.Ry.     | 2,000         | 6 mos.       |
| <b>TENNESSEE Railroad Commission. Elective; term, 6 years.</b>   |                                 |               |              | <b>TENNESSEE Railroad Commission. Elective; term, 6 years.</b>                 |                            |               |              |
| B. A. Enloe, Chairman  | Editor                          | \$3,600       | 12           | B. A. Enloe, Chairman  | Editor                     | \$3,600       | 12           |
| Harvey H. Hannah, Com'r.   | Lawyer                          | 3,000         | 10           | Harvey H. Hannah, Com'r.   | Lawyer                     | 3,000         | 10           |

| States and Names  | Previous occupation                              | Annual salary       | Years served |
|---|--|---------------------|--------------|
| Geo. W. Welch, Com'r.....   | Stave mfg.                                       | \$3,000             | 2            |
| Miss Willie Fields, Secretary.....                                      | Stenographer                                     | 2,000               | 7            |
| J. O. Hendley, Rate Clerk.....  | Ry. rate man                                     | 1,800               | 3            |
| Miss Frances Clark, Stenog'r.....                                       | Stenographer                                     | 1,000               | 4            |
| TEXAS, Railroad Commission of. Elective; term, 6 years.                 |  |                     |              |
| Allison Mayfield, Chairman.....   | Lawyer   | \$4,000             | 19           |
| Earle B. Mayfield, Com'r.....   | Lawyer   | 4,000               | 4            |
| C. H. Hurdleston, Com'r.....  | Railroading                                      | 4,000               | 3 mos.       |
| R. D. Parker, Engineer.....   | Engineer   | 3,000               | 5            |
| W. E. Fitzgerald, Auditor.....  | Auditing   | 2,700               | 6            |
| E. R. McLean, Secretary.....  |  | 1,800               | 10           |
| O. D. Hudnall, Rate expert.....   | Clerical   | 2,700               | 10           |
| VERMONT Public Service Commission. Appointive; term, 6 years.           |  |                     |              |
| Wm. R. Warner, Chairman.....  | Business man                                     | \$1,700             | 6            |
| Robert C. Bacon, Commissioner.....                                      | Lawyer   | 2,250               | 4            |
| Walter A. Dutton, Commissioner.....                                     | Lawyer   | 1,700               | 2            |
| Neil D. Clawson, Clerk.....   | Business man                                     | 1,600               | 4            |
| VIRGINIA State Corporation Commission. Appointive; term, 6 years.       |  |                     |              |
| Christopher B. Garnett, Ch'man.....                                     | Lawyer   | \$4,500             | 2½ m.        |
| Wm. F. Rhea, Commissioner.....  | Lawyer   | 4,000               | 9            |
| J. R. Wingfield, Commissioner.....                                      | Farmer   | 4,000               | 7            |
| R. T. Wilson, Clerk of Com'n.....                                       | G. F. & P. A., F. & P. R. R.                     | 2,750               | 12           |
| T. G. Strachan, 1st Asst. Clerk.....                                    | Ry. cashier                                      | 2,250               | 11           |
| E. E. Cone, Statistician, Ch. Clk., Roadway Dept. ....                  |  | 2,250               | 11           |
| WASHINGTON, Public Service Commission of. Appointive; term, 6 years.    |  |                     |              |
| E. F. Blaine, Chairman.....   | Lawyer and bus. man                              | \$5,000             | 1            |
| Frank R. Spinning, Com'r.....   | Farmer   | 5,000               | 4            |
| Arthur A. Lewis, Com'r.....   | Accountant                                       | 5,000               | 4            |
| T. E. Phipps, Chief Engineer.....                                       | Civil engineer                                   | 3,600               | 3            |
| O. O. Calderhead, Rate expert.....                                      | Gen. agent, Ry.                                  | 3,000               | 12           |
| R. D. Jarboe, Ch. Grain Insp'r.....                                     |  | 2,000               | 4            |
| J. H. Brown, Secretary.....   | Newspaper man                                    | 2,000               | 4            |
| WEST VIRGINIA, Public Service Commission of. Appointive; term, 6 years. |  |                     |              |
| E. F. Morgan, Chairman.....   | Lawyer   | \$6,000             | 18 mos.      |
| Elliott Northcott, Commissioner.....                                    | Lawyer   | 6,000               | 2            |
| E. G. Rider, Commissioner.....  | Lawyer   | 6,000               | 6 mos.       |
| R. B. Bernheim, Secretary.....  | Clk. County Court                                | 5,000               | 4            |
| H. E. Nease, Statistician.....  | Statistician                                     | 3,000               | 3            |
| E. R. Shepherd, Ch. Inspector.....                                      |  | 2,400               | 1            |
| E. E. Winters, Ry. Inspector.....                                       | Connected with rys.                              | 2,400               | 4            |
| C. O. Wolfes, Rate clerk.....   | Rate clerk                                       | 1,500               | 4            |
| WISCONSIN, Railroad Commission of. Appointive; term, 6 years.           |  |                     |              |
| Walter Alexander, Chairman.....   | M. M., C.M. & St. P. Ry.                         | \$5,000             | 2            |
| Carl D. Jackson, Commissioner.....                                      | Lawyer   | 5,000               | 2            |
| Henry R. Trumbower, Comr.....   | Prof. of Economics                               | 5,000               | 7 mos.       |
| H. L. Geisse, Secretary.....  | Lawyer   | 3,300               | 3½           |
| C. M. Larson, Chief Engineer.....                                       | Engineer   | 5,000               | 5            |
| J. F. Hogan, Tariff expert.....   | Ch. Insp., West. Ry. Weigh. Assn. & Insp. Bureau | 2,100               | 12           |
| C. E. Schreiber, R. R. Statist'n.....                                   | Student  | 3,000               | 12           |
| S. D. Odegard, Pub. Util. Stat'n.....                                   | Student  | 2,700               | 6            |
| WYOMING Public Service Commission. Elective, ex-officio.                |  |                     |              |
| John B. Kendrick, Governor.....   | Stock man and capitalist                         | Sal. as Gov. only   | 2            |
| Robert B. Forsyth, State Aud.....                                       | Railroading                                      | Sal. as Aud. only   | 2            |
| Herman B. Gates, State Treas.....                                       | Banker   | Sal. as Treas. only | 2            |
| H. A. Floyd, Secretary.....   |  | 3,000               | 2            |

#### SOME FACTS ABOUT MEMBERS OF THE INTERSTATE COMMISSION

In order more fully to serve the purpose of convenient reference to the personnel of the regulatory commissions, there is hereto appended a brief sketch of the previous history of each of the members and the secretary of the Interstate Commerce Commission:

**BALTHASAR H. MEYER**, Appointed during January, 1911. Born Mequon, Wis., May 28, 1866; district school teacher and principal 1884-1889; graduate Oshkosh Normal School 1893; University of Wisconsin 1893. Ph. D., 1897; University of Berlin graduate courses, 1894-1895; extension lecturer, University of Wisconsin, 1896; assistant professor of sociology, 1899; professor of Political Economy, 1900; railroad commissioner of Wisconsin, 1905; chairman, 1907-1911; member of Hadley Securities Commission.

**JUDSON C. CLEMENTS**, appointed 1892. Born in Georgia, 1846; educated at public schools; legal education Cumberland University; began practice, 1869; school commissioner, 1871; Georgia House of Representatives, 1872-1876; Georgia Senate, 1877; Congress, 1881-1891.

**EDGAR E. CLARK**, appointed 1907. Born February 18, 1856; graduate Wesleyan Seminary; brakeman 1871, and later passenger conductor; grand senior conductor, Order of Railway Conductors, 1889; grand chief conductor, 1890—held this position until appointed on Interstate Commerce Commission; acted on the anthracite coal strike commission, 1902; Mr. Clark was first and only member of the commission familiar with actual operation of a railroad.

**JAMES S. HARLAN**, appointed August, 1906. Born Evansville, Ind., November 24, 1861; graduate Princeton, 1883; studied law; admitted to practice, 1886; 1901, attorney general of Porto Rico for two years.

**CHARLES C. MCHORD**, appointed December, 1901. Born Springfield, Ky., December 3, 1859; graduate Center College; practiced law after graduation; prosecuting attorney, Springfield, Ky., 1886-1892; Kentucky Railroad Commission, May, 1892; Kentucky State Senate, 1895-1899; Kentucky Railroad Commission, 1899-1901.

**HENRY C. HALL**, appointed February, 1914. Born, January 3, 1860, New York City; graduate Amherst, 1881; Columbia Law School; admitted to practice 1883; practiced in Paris, France, 1885-1892; located Colorado Springs; general attorney of the Arkansas, Louisiana & Gulf and general

counsel for a number of other corporations; mayor Colorado Springs, 1905-1907.

**WINTHROP M. DANIELS**, appointed February, 1914. Born Dayton, Ohio, September 30, 1867; graduate Princeton 1888; professor of Political Economy, Princeton, 20 years; member Public Utilities Commission of New Jersey, 1911; published several books, lectured on public finances and railway economics, and was editorial writer of the New York Evening Post.

**GEORGE B. MCGINTY**, Secretary, born Monroe County, Georgia, September 8, 1878; educated at Emory College, Oxford, Ga.; admitted to Georgia bar; clerk Atlantic Coast Line, soliciting agent's office; local freight office, Georgia Railroad; maintenance of way department, Southern Railway; private secretary to vice-president and general manager, Southern Railway; Bureau of Animal Industry, Department of Agriculture, 1906; Interstate Commerce Commission, Division of Statistics and Accounts, 1908; confidential clerk to Commissioner Clements; special examiner 1911; assistant secretary 1912.

## MECHANICAL DEPARTMENT ENGINEERING

By C. A. Seley

A well known officer of a railway supply company once remarked what at first blush seemed very bold and braggadocio in its statement, to the effect that he believed he knew more of the fundamental principles of the art with which his business was connected than any other man in the country. On analysis the remark was found to be true. He had an extensive railroad experience of many years, on a great railroad, was foremost in co-operation in mechanical convention and committee work during his railroad career and was well fitted by his experience and temperament to devote a well trained intelligence to the study and development of one thing after having to think of the many things required of a railroad executive. In other words, he became a specialist in his line, and specializing, in connection with opportunity, has made many successes. The specialist should have the grounding of a general practitioner and while education has much to do with ultimate success, practice and experience with more or less of post graduate education, so to speak, makes the best combination.

The professions of law, medicine and the fine arts are filled with proofs of the achievements of the specialist and why should not the principle have universal recognition? Why should a railroad mechanical man have to leave the service to become a specialist, or rather, why shou'ld not the railroads take advantage to themselves by training and using specialists in their mechanical departments?

In the evolution of comparatively recent years, the railroad mechanical department head has become less a specialist than formerly. The burden of adjustment of labor matters, within and in many cases beyond his own department; the burden of administering the legislative requirements imposed by the state and national governments, and the co-operation with officers of other roads on special matters and policies cut into his opportunity to do real constructive detail work of a mechanical nature.

The increasing requirements of traffic, standardization, consideration of improvements in devices, machinery methods and materials have an insistent call. Much of this is passed on to the office of the mechanical engineer, making a heavy increase in the burden and responsibility of that office if it is adequately handled; and right here is where the specialist principle may be taken advantage of.

What should be the relative cost of mechanical engineering on a railroad as compared with other lines in which adequate engineering compensation is paid? Take, for instance, an expenditure of one million dollars as a unit. That amount sounds big but as prices go nowadays it means perhaps less than 50 locomotives or 1,000 freight cars, and for the average road it is not so much after all. If a million is to be expended on a building the architects' fees and engineering will probably be not less than two per cent, up perhaps to five per cent.

Suppose a railroad is to expend a million dollars on locomotives or cars, what is the percentage of that amount ordinarily expended by the road in preparing plans and specifications? It is generally such a small fraction of one per cent as to be insignificant. It may be argued that the builder

has to do the engineering anyhow, make his own drawings, etc., and it is a part of the price. This is no doubt true, but the builders have been forced to do it by the utterly inadequate engineering methods of the majority of roads, with this disadvantage that the engineering at the builder's has to be done largely without full knowledge of conditions on the road.

It is granted that competition requires a certain amount of freedom on the part of the builder to make use of his facilities and that rigid compliance with a road's standards in specifications must be paid for, but this is all the more an argument for the specialist of the railroad who may decide to what extent cost of operation and repairs on the road will be affected by permitting builder's standards to prevail. For instance, there should be little argument in the case of steel passenger equipment of allowing builders' plans on framing if proper stresses are provided for, but the trucks, all body attachments, interior finish, fittings and trimmings—all those things which have to do directly with the future use, maintenance and repairs on the road and not at the builder's,—gives the specialist an opportunity for making provision for great future economies in those directions.

In the matter of freight car equipment many and abortive have been the efforts for standardization. Everybody admits the value of the principle and there is no good reason for the wide variance in details. In fact this is proven by the fact of general interchangeability of the cars. Just so long as the design and details are decided by individuals who are not specialists, who in many cases cannot know nor appreciate the points of value in the construction and maintenance features of any cars not stenciled their own X. Y. Z. R. R., just so long will individuality defeat co-operation and standardization.

Officers of some roads may say that they do not require all the things deemed essential by some other roads where conditions are different. Climate, gradient, character of traffic facilities, etc., are all urged as reasons for differentiation, yet let it be pointed out that they have subscribed to the rules of interchange and enjoy advantages accruing from that connection or doubtless they would not have joined. Having joined it seems that they should see also the value of standardization in the large and contribute their share in bringing about general future economies in equipment maintenance.

It is plain that the mechanical department head cannot be the specialist. He must be an executive, administering in many things, but if submerged with details he cannot take the larger vision required for a real department head. The mechanical engineer cannot be the specialist. He may be an authority, if he has taken advantage of opportunity and experience, and would make the best specialist but for the fact that his job is one of the most diversified on the railroad. He is expected to know something about everything and his attention is directed in manifold paths. The mechanical engineer does much of the real railroading of today while the boss is confined, often for weeks, with committees, conferences, inspection trips and emergencies.

It would appear, therefore, that the specialist should be a part of the mechanical engineer's organization and that there should be more than one specialist to cover the situation adequately. Thought has thus far been directed more toward new equipment but that is really the lesser part of the opportunity and reason for specialists.

Take the greater items of expense on a railroad; for instance, fuel. It is not the mechanical engineer's business to regulate details of firing, but to know that the mechanical appliances are such as properly to handle the coal from the chute to the stack. They may look fine on paper or in the shop but road service is the test and the mechanical engineer is not in such close touch as to know that they are as near 100 per cent as is possible from the standpoint of correct

engineering. If they are bad he will doubtless hear of them but with his generally limited force he cannot get the exact facts and information that will enable a complete cure.

If he can detach a specialist and let him devote a week or two on almost any class of locomotive, the man will come back with a lot of little things, and perhaps some big ones, that will pay big dividends from the investment. The office will be given first hand information for the correction of existing shortcomings and for future new development and new equipment.

Take the matter of freight car repairs. Almost every repairer knows something that would be of advantage to the road if the mechanical engineer knew it. Yet they seldom, if ever, meet and much of this knowledge is not utilized for improvement. How can it be gained except by a haunting of rip tracks and inspection points by a specialist who by proper training can find these things out, can get costs of operations that are general in character and compare results in methods and facilities in a most extensive field for economies. Studies can be made of details and devices in service and the office be kept informed so as to have an adequate check on reports through other channels which may be correct as far as they go but often lack the essential detail to enable correct judgment to be exercised.

Instances may be multiplied showing the opportunity for economies or increase of efficiency and for correction of the thousand and one things that because they are everybody's business are not corrected. It is not urged that the specialist is the cure-all for mechanical department difficulties but if these difficulties are intelligently scrutinized, analyzed and reported, most troubles can be cleared up.

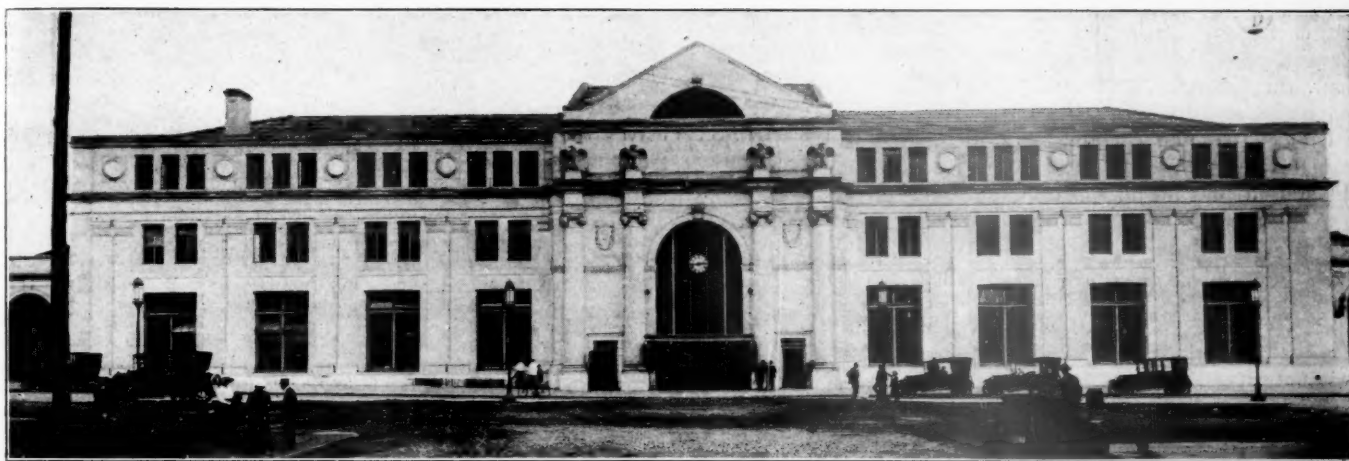
The specialist is not necessarily a new man, or office, or title, the main qualifications being balance, tireless energy in following elusive details; one who can, with the opportunity, so concentrate himself on the subject in hand as to develop his best judgment and then have the ability of clear expression in reporting the findings. He must have tact and courtesy as well as firmness to command respect and confidence.

Railroad training develops such men but has denied them too long the opportunity of demonstrating their worth in raising the standard of the mechanical department.

Such an organization is in line with that of other departments. The chief calls in his division men for conferences, the shop superintendent should have daily conferences with his foremen, mechanical officers sit in with transportation department officers in conference. Given a corps of efficient specialists, the mechanical engineer is re-enforced by first-hand observers and their value to him is limited only by what he can make of them by opportunity, encouragement, and freedom of expression. These men will be of value to draw upon for future department heads and will provide well trained, efficient talent, fully acquainted with conditions.

The desired result perhaps can best be brought about by co-ordinating the work of the department of the mechanical engineer with that of an engineer of tests, enabling a more direct supervision of outside matters, but the main and essential thing is support of such an organization as will be effective. A liberality of expenditure commensurate with the advantages to be gained will stagger but should not upset railroad executives, once the present situation on most railroads is understood and the probabilities in the economies of operation are appreciated.

**LARGE PRODUCTION OF FUEL BRIQUETS.**—The production of fuel briquets in the United States in 1916 was 295,155 net tons, valued at \$1,445,662, an increase compared with 1915 of 73,618 tons, or 33 per cent in quantity, and \$409,946, or 40 per cent in value. The production in 1916 was the greatest recorded, exceeding that of 1914.



Front Elevation of the Macon Union Station

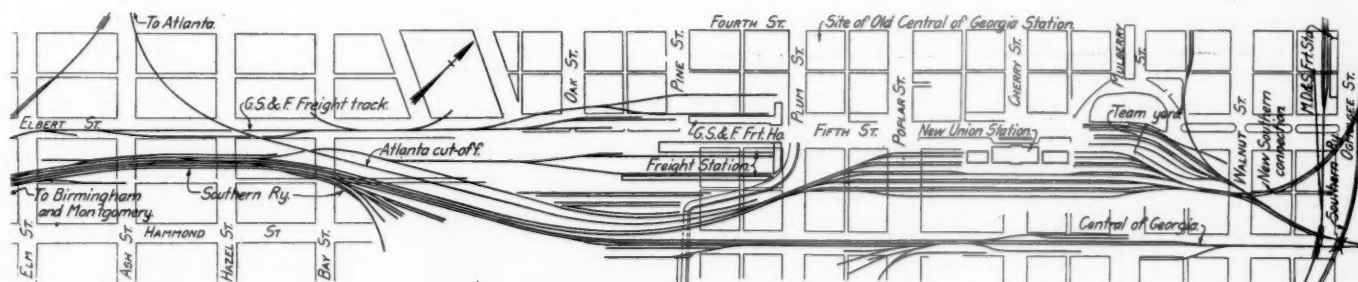
## New Union Passenger Facilities at Macon

The Work Includes Station Building, Track Layout and Construction of Approaches to the Terminal District

NEW union station facilities have recently been completed at Macon, Ga., which have been under construction for the past two years, and have involved an expenditure of more than \$2,500,000, of which approximately \$600,000 was spent for the station building. In addition to the station and track layout, the project included the building of approaches from the tracks of the Central of Georgia and the Southern to those of the terminal district. The Central of Georgia approach involved the construction of a fill 2,700 ft. long and a steel viaduct 1,540 ft. in extent, built as a part of the so-called Atlanta cut-off, to provide the means for operating trains through the city without the necessity of turning them. The approach from the tracks of the Southern consists of a fill

pany which was incorporated under the laws of Georgia on July 9, 1914, for this purpose and for the operation of the terminal. This company was organized on February 24, 1915. The capital stock of \$100,000, with the exception of one share held in the treasury and the directors' qualifying shares, is divided equally between the Central of Georgia, the Southern, and the Georgia, Southern & Florida railways. A bond issue of \$3,000,000 was authorized, of which \$1,600,000 has been issued and sold. The construction of the approaches to the terminal district was carried on by and at the expense of the individual railroads.

The site chosen for the new terminal is convenient of access for the railroads, being about midway between the old stations. It occupies the greater part of the five city



Map of the Terminal and Station Tracks

placed between gravity retaining walls and ending with a reinforced concrete viaduct.

Under the old arrangement there were two separate stations in Macon. The Union station owned by the Central of Georgia was also used by the Georgia Railroad, the Macon & Birmingham and the Georgia, Southern & Florida and handled 60 trains in and out daily. The second station, owned by the Southern, was also used by the Macon, Dublin & Savannah, 23 trains arriving and departing from it daily. The distance between the two stations which is approximately three-quarters of a mile, made a bus line necessary for the transfer of passengers and the inconvenience of this transfer was an important consideration leading to the adoption of the union terminal project when enlarged passenger facilities became necessary.

The project was carried on by the Macon Terminal Com-

blocks between Fifth, Sixth, Walnut and Plum streets and covers about 13 acres. It is also convenient to the business center of the city, being only two to three blocks distant from the principal hotels. In preparing the site, Cherry, Mulberry and Pine streets were closed through the terminal district, and the grade of Poplar street was lowered to permit it to be carried under all the tracks of the terminal property. The subway at this point has a total length of 285 ft., carries 13 tracks and provides space for two sidewalk spans each 10 ft. in the clear and two driveways of 20 ft. clearway each. At Walnut street a reinforced concrete floor was placed on the old steel structure spanning the street, and at Pine street, the traffic was diverted to Plum street by means of a subway.

The old Central of Georgia station at Plum and Broadway is of the stub-end type, but was used as a through

station for the Central of Georgia, all trains backing into the station. Macon is the terminal for the Georgia Railroad, the Georgia Southern & Florida, the Macon & Birmingham, and the Macon, Dublin & Savannah.

Under the new arrangement the Central of Georgia trains from the east leave the old line 3,000 ft. east of the old station and swing north to the terminal district over a new double track line, the old passenger tracks being utilized for freight. Trains from Savannah destined for Atlanta leave the terminal company's track 1,200 ft. west of the new station and follow a new single track line for a distance of 2,700 ft. to Bay street, where they pass over a steel viaduct 1,540 ft. long to a connection with the original main line tracks to Atlanta. The trains of the Columbus and Southwestern divisions are made up at

use the Central of Georgia tracks to a junction with their own line at Mogul.

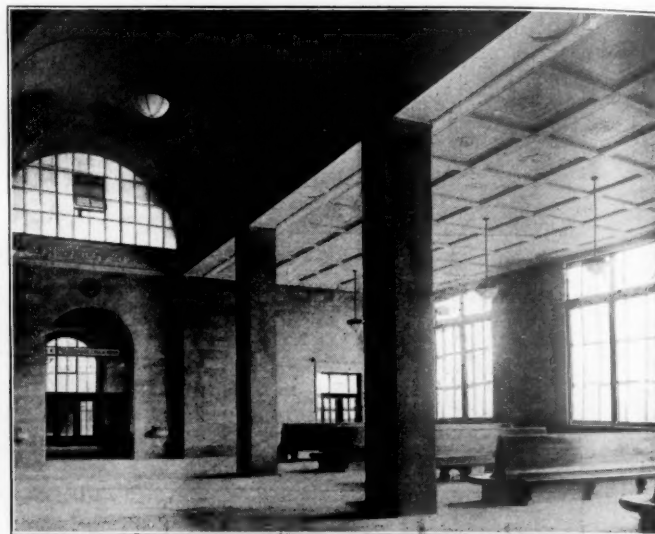
The Southern utilizes the tracks to its old station for freight purposes and the approach to the terminal district leaves the present line at a point about one-half mile east from the old station. Leaving the old line, the approach consists of a fill about 800 ft. long, placed between gravity



Ticket Lobby Looking Toward Concourse

Macon and use the terminal company's tracks for a distance of 800 ft., where they connect with the new double track line that has been built to Macon Junction and a connection with the original tracks.

The Georgia, Southern & Florida and the Macon & Birmingham are controlled by the same interests and under the old arrangement all departing trains were made up at

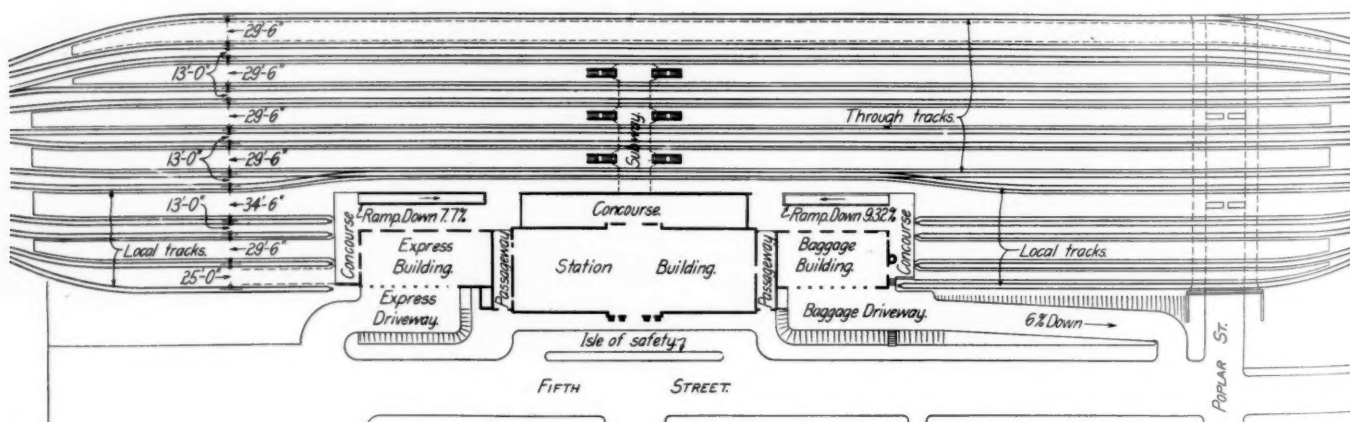


Vaulted Ceiling Cross Lobby in Waiting Room

retaining walls, and ending at a re-inforced concrete viaduct that passes over the freight house drive, the intersection of Ocmulgee and Fifth streets, the drive to the present station and the tracks leading to the Macon, Dublin & Savannah freight house. Trains from Atlanta enter the new station over this filled approach and viaduct and depart over the tracks of the Central of Georgia to Macon Junction. From the junction for a distance of about 1½ miles they use the Georgia, Southern & Florida tracks to a new connection with their own line.

#### THE PASSENGER STATION

The station building fronts on Fifth street, one of the important thoroughfares of the city, and is placed symmetrical with and faces up Cherry street which leads to the



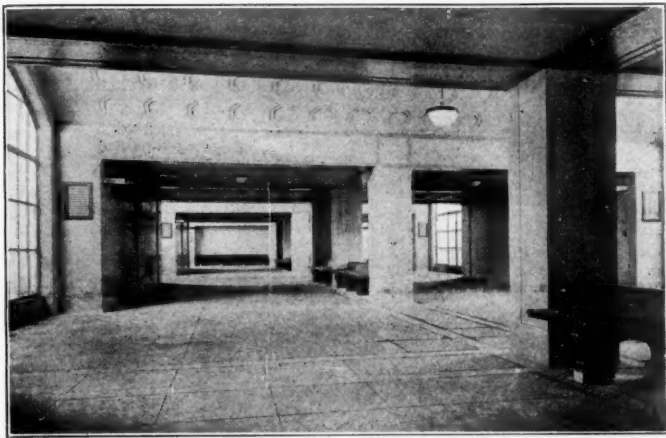
Track Plan of the Station

the old union station. Under the new plan, the trains leave the terminal over the same route as those of the Columbus and Southwestern divisions of the Central of Georgia to Macon Junction where they connect with their own rails. The Georgia Railroad trains use the terminal company's tracks to a point 1,000 ft. east of the new station and then

business center of the city, an arrangement which gives the station a conspicuous location. The main building is 243 ft. long, 84 ft. wide and three stories in height. It is flanked on either end by the baggage and express buildings.

The design of the building is attractive. The exterior walls of the front and ends are of Bedford limestone and

the roof is laid with red cement tile. The striking feature of the main facade is the main entrance arch which is flanked by four Ionic limestone columns, surmounted by carved eagles of the same material. The front elevation of the baggage and express building is also finished in limestone to harmonize with the main structure. The exterior finish of the rear walls is of buff brick. The building con-



The Subway to Trains

sists of the exterior walls built around a skeleton steel frame supported on concrete foundations that rest on hard calico clay, no piling being necessary.

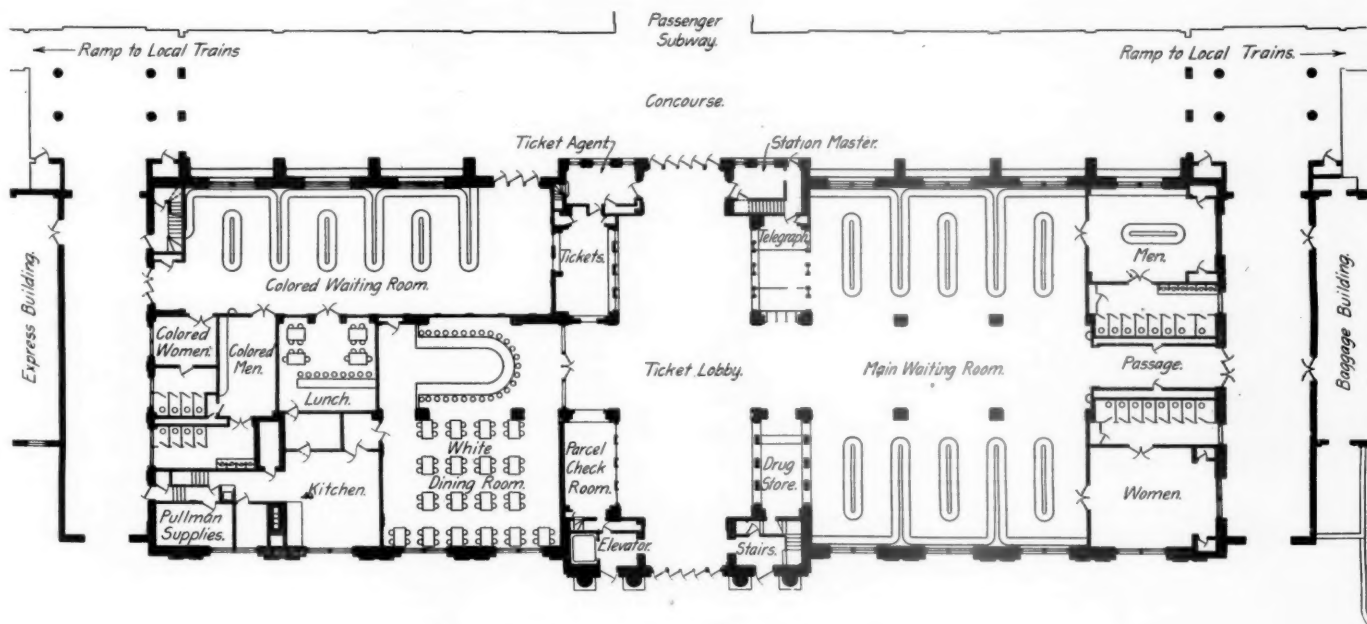
In the interior a radical departure has been made from the usual design of large stations where the waiting room ceilings are carried to the full heights of the structures with the consequent loss of available floor space. Instead the spacious effect has been created in the interior by the use of a vaulted ceiling over the ticket lobby, carried to the full

carried only to the level of the second floor. This arrangement deprives the upper floors of only 30 ft. of office space through the center of the building, a saving which was much to be desired in this particular station.

The principal entrance is from Fifth street and consists of a group of five doors placed between the center columns supporting the main arch and leading through vestibules directly into the ticket lobby, and separate doors placed between the outside columns of the arch leading into the elevator and stair lobbies. This entrance serves for passengers coming by carriage as well as for pedestrians, a broad marquise providing a porte-cochere. The drive is paved with concrete and is separated from Fifth street by an isle of safety.

The ticket lobby extends the full width of the building from the principal entrance to the exit to the concourse and trains. A drug store, a parcel check room, the railroad and Pullman ticket office and the telegraph and telephone offices open directly into the lobby, an arrangement which makes it possible for one to purchase tickets and pass directly to the trains without going through the waiting room. The corridors leading to the stairs and elevator to the floors above also open into this lobby.

The white waiting room facilities occupy the west end of the building. The seating alcoves are separated by the vaulted ceiling cross lobby and the passageway leading to the baggage building. The white men's room, barber shop and toilets occupy the extreme west end of the building to the left of the passageway, while the white women's room and toilets occupy a similar space to the right. The floors in the lobby, the waiting room and the men's room are of marble, while cork was used in the women's room. The ceilings are of plaster and the walls are finished in pink-tinted Tennessee marble. Daylight is admitted to the waiting room through large windows in the front and rear, the artificial lighting being indirect. To provide for ventilation



Plan of the Station Building at the Waiting Room Level

height of the building. This lobby occupies the central portion of the building, is 30 ft. wide, and extends the full width of the station. The spacious effect is further carried out in the waiting rooms by the vaulted ceiling over a cross lobby or passage leading through the waiting room from the ticket lobby to a pedestrians' concourse at the west end of the building. The cross lobby is free of seats, but seating lobbies are provided on either side where the ceiling is

in warm weather, the windows are opened by means of a rack and pinion and disappear into recesses provided in the walls, allowing the full window area for the passage of air.

The entrance to the colored waiting room is from Fifth street through the pedestrian concourse that separates the main and the express buildings. The colored waiting room, toilets and dining room occupy the east end of the building

and are entirely separated from the facilities for white persons, as are the exits to the concourse. Two windows in the ticket office open into the colored waiting room.

The restaurant for white patrons opens to the left from the ticket lobby and, with the kitchen and pantries, occupies the space between this lobby and the colored waiting room facilities. The kitchen is arranged to supply service for both the white and colored dining rooms. The walls and floors are finished in white tile.

A mezzanine floor is provided at the track level above the kitchen and the colored lunch room. This floor is devoted to the use of trainmen with train telegraph and register office, locker rooms, toilet facilities, report rooms and rest rooms provided. Here again separate quarters are provided for the white and the colored employees. The second and third floors are used for office purposes.

The main passenger concourse which is 33 ft. wide and the length of the building, joins the station in the rear. Access to the concourse from the ticket lobby is had through a group of five doors and other doors are also provided from the colored waiting room. An incline to the west leads to the local tracks and the baggage building and another on the east leads to local tracks and the express building. The concrete floor is finished with master builders red in 2 ft. squares and the wall finish is of stucco and buff brick. Seats are provided along the station side. The floor is sloped to the subway leading from the concourse under the through tracks.

The subway is 36 ft. wide and was built as a reinforced concrete arch. The floor is similar to that of the concourse and the finish is of Tennessee marble. Seats are also provided here for passengers. The platforms above are reached by means of stairs, this being the only occasion in the entire layout where passengers are required to use steps in going from one level to another.

The track system consists of six through tracks with five stub tracks at each end of the station for the local service.



Main Passenger Concourse

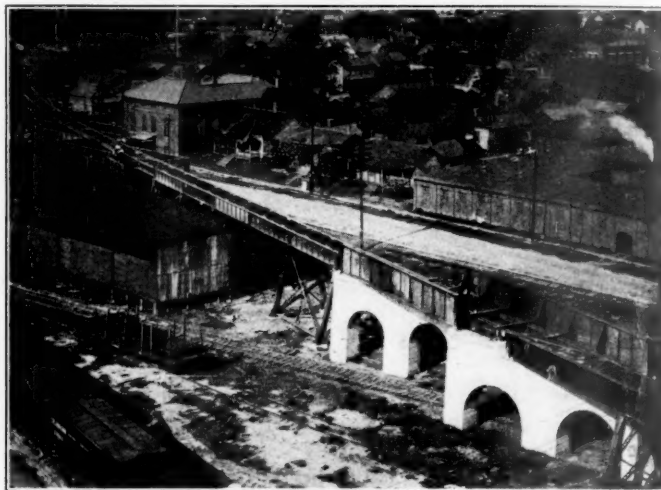
Space has also been provided for two additional through tracks. The platforms at present are built of wood, this construction being occasioned by the 8-ft. earth fill that was placed to secure the desired elevation. After the settlement subsides permanent concrete platforms are to be installed. The platforms are covered with steel channel sheds of the butterfly type carried on concrete foundations. The platforms for the through tracks are of the high island type.

Separate buildings have been provided for the baggage and mail facilities and for express. The baggage building is located west of the main station and is 112 ft. 4 in. long by 57 ft. wide, a section 23 ft. long being devoted to mail and the remainder to baggage facilities. The baggage check-

ing room is located on the level of the main floor of the station. Here again separate lobbies are provided for white and colored passengers, separated by a stairway leading to the baggage storage room which is placed at the track level.

Entrance to the checking lobbies from the street and the main building is gained by means of a pedestrians' concourse located between the station and the baggage building. Elevators for checks and for hand baggage are provided between the checking office and the baggage storage room above.

Trunks and the heavier luggage are not handled at the lower level, but are delivered to the main baggage room. Unloading platforms at wagon height are provided along the



East End of the Atlanta Cut-Off

driveway side of the room. The driveway is paved with concrete and connects with Fifth street by means of a ramp. A terraced grass plot separates the driveway level from the sidewalk at Fifth street.

The doors of the baggage room are of the sliding type on the track side and the folding type on the driveway side of the building. A Fairbanks dial scale is provided for weighing purposes. A trucking platform 15 ft. wide leads from the baggage and express rooms, ending at planked crossings of the tracks at the ends of the platforms. This platform is placed at the track level above the concourse and subway to permit the handling of baggage and express without interfering with passengers going to and from trains.

The express building is located to the east of the main building and is 134 ft. long by 57 ft. wide. The express is handled from the second floor or track level as in the main building, a driveway being provided from Fifth street. The public offices are on the ground floor.

#### THE ATLANTA CUT-OFF

As previously stated, under the old arrangement the Central of Georgia passenger trains were turned on a wye in front of the old depot because of the indirect way in which the old Atlanta main line enters Macon. With the adoption of the new terminal plan, it was necessary to abandon this wye and provide means for handling through trains without turning. This was accomplished by building what is termed the Atlanta cut-off which effects a considerable reduction in the schedule time between Macon and Atlanta. The cut-off leaves the terminal station on a fill that extends for a distance of 2,700 ft. to Bay street. On this fill the tracks were placed on a 1.25 per cent ascending grade to secure a vertical clearance of 22 ft. where the new line crosses the lead to the freight warehouse at Bay street. From Bay street the line enters on the viaduct section of the cut-off. The 1.25 per cent grade extends for a distance of about 300 ft. on the

viaduct from which point a 0.41 per cent ascending grade was installed to the junction with the old main line.

The viaduct is 1,540 ft. long, of which 1,308 ft. was built on a curve of 8 deg. 6 min. 22 sec. Leaving Bay street the viaduct consists of two deck spans and a through span over the freight house lead. From the crossings of the freight house track the construction is of 30 ft. deck girder spans to the crossings of the Georgia, Southern & Florida where, because of the flat angle of intersection, it was necessary to place the columns in bents parallel with the lower tracks. At this point a minimum depth of floor was obtained by supporting the track stringers on floor beams placed slightly less than 5 ft. center to center, which in turn are supported by girders framed into the columns.

Beyond the Georgia, Southern & Florida crossing, the line crosses the intersection of two streets where it is necessary to maintain a minimum clearance of 12 ft. 6 in. Here it was again necessary to use heavy girders between columns set in the curb line to carry the track stringers. From this point for a distance of 700 ft. the viaduct consists of the 30-ft. deck girder span construction except for one span over a proposed track. The ends of the girders are supported directly on the heads of the columns and every other bent is braced to form a tower. The bents are set as nearly as possible on radial lines.

At the intersection of Broadway a through girder span was used, supported on columns set on the curb line and from Broadway to its end where the viaduct follows the line of Ash street, it was necessary to support the heavy girders on columns set just back of the curb line.

All the steel work was designed in accordance with the Harriman lines common standard specifications for rolling loads. The 4-in. superelevation of the outer rail of the central curve with proportionate superelevation for the spiral was framed in the steel. The steel was fabricated and erected by the Virginia Bridge & Iron Co. The erection was begun at the west end and carried on from a temporary track placed on the completed portion of the structure.

The masonry is all of plain concrete except the east abutment which is of the reinforced trestle type. The structure is founded on clay which permitted a load of three tons per sq. ft. The viaduct floor is of the open type, the ties being 8 in. by 10 in. by 10 ft. long dressed on all sides and creosoted. All ties were framed before treatment. At street crossings a solid 2-in. plank floor, treated with zinc chloride has been provided.

The supporting columns, when placed in streets, were encased in concrete to a height of 18 in. above the street. In the construction of the viaduct more than 1,062 tons of metal was used and approximately 1,380 cu. yd. of concrete was placed in the foundation. The track is laid with 90-lb. rails with tie plates on each tie.

The terminal project was built under the direction of C. K. Lawrence, chairman board of engineers, Macon Terminal Company, with F. L. Hewitt, engineer in charge of construction. The station was designed by Alfred Fellheimer, architect, New York. J. Henry Miller, Incorporated, of Baltimore, was the general contractor. The Atlanta cut-off viaduct was designed by J. B. Maddock, engineer bridges and buildings, and erected under the supervision of C. K. Lawrence, chief engineer of the Central of Georgia. The concrete viaduct of the Southern was designed in the office of and constructed under the supervision of W. H. Wells, chief engineer of construction, Southern Railway.

**ENGLISH RAILWAY OFFICER IN GOVERNMENT POSITION.**—Another railway officer has been given a high administrative position under the government, in the person of Guy Calthrop, the general manager of the London & North-Western Railway, who has been made controller of coal mines.

## AMERICAN RAILROAD SECURITIES HELD ABROAD

L. F. Loree, president of the Delaware & Hudson, who has been making a comprehensive study of holdings of American railroad securities abroad and of the return of these securities since the beginning of the war, has now brought his figures down to January 31, 1917. Mr. Loree says:

"At the time this inquiry was first undertaken, it was ascertained that the securities held abroad on January 31, 1915, were of a par value of \$2,704,402,364. This information was received from 144 railroad companies, being all the roads

| SECURITIES HELD ABROAD          |                    |                  |
|---------------------------------|--------------------|------------------|
| Class of Security               | Par Value          | Market Value*    |
| <b>Preferred Stock—</b>         |                    |                  |
| Jan. 31, 1917.....              | \$91,006,300.00    | \$61,358,921.25  |
| July 31, 1916.....              | 120,597,750.00     | 93,816,715.00    |
| July 31, 1915.....              | 163,129,850.00     | 117,863,393.01   |
| Jan. 31, 1915.....              | 204,394,400.00     | .....            |
| <b>Second Preferred Stock—</b>  |                    |                  |
| Jan. 31, 1917.....              | 4,645,100.00       | 1,724,583.00     |
| July 31, 1916.....              | 4,858,650.00       | 2,060,256.00     |
| July 31, 1915.....              | 5,608,850.00       | 2,115,415.00     |
| Jan. 31, 1915.....              | 5,558,150.00       | .....            |
| <b>Common Stock—</b>            |                    |                  |
| Jan. 31, 1917.....              | 285,729,918.75     | 184,985,417.95   |
| July 31, 1916.....              | 336,761,704.00     | 234,154,103.00   |
| July 31, 1915.....              | 511,437,356.25     | 342,225,958.00   |
| Jan. 31, 1915.....              | 573,880,393.00     | .....            |
| <b>Notes—</b>                   |                    |                  |
| Jan. 31, 1917.....              | 8,475,650.00       | 7,966,437.50     |
| July 31, 1916.....              | 9,070,955.00       | 6,844,240.00     |
| July 31, 1915.....              | 24,632,291.93      | 22,574,283.93    |
| Jan. 31, 1915.....              | 58,254,390.16      | .....            |
| <b>Debenture Bonds—</b>         |                    |                  |
| Jan. 31, 1917.....              | 56,752,080.00      | 53,714,158.25    |
| July 31, 1916.....              | 74,796,900.00      | 69,858,284.00    |
| July 31, 1915.....              | 160,288,700.00     | 141,444,593.00   |
| Jan. 31, 1915.....              | 187,508,310.00     | .....            |
| <b>Collateral Trust Bonds—</b>  |                    |                  |
| Jan. 31, 1917.....              | 57,776,380.00      | 51,600,784.95    |
| July 31, 1916.....              | 85,166,470.00      | 66,526,692.00    |
| July 31, 1915.....              | 180,590,850.00     | 136,422,185.75   |
| Jan. 31, 1915.....              | 282,418,415.26     | .....            |
| <b>Mortgage Bonds—</b>          |                    |                  |
| Jan. 31, 1917.....              | 672,969,224.08     | 554,787,819.46   |
| July 31, 1916.....              | 774,793,834.00     | 628,183,797.00   |
| July 31, 1915.....              | 1,150,339,130.00   | 962,081,613.26   |
| Jan. 31, 1915.....              | 1,371,156,851.00   | .....            |
| <b>Equipment Trust Bonds—</b>   |                    |                  |
| Jan. 31, 1917.....              | 7,449,833.33       | 7,397,983.83     |
| July 31, 1916.....              | 7,788,300.00       | 7,015,683.00     |
| July 31, 1915.....              | 25,253,201.00      | 24,480,410.55    |
| Jan. 31, 1915.....              | 20,233,455.00      | .....            |
| <b>Car Trusts—</b>              |                    |                  |
| Jan. 31, 1917.....              | 49,000.00          | 48,540.00        |
| July 31, 1916.....              | 836,000.00         | 681,320.00       |
| July 31, 1915.....              | 29,000.00          | 29,060.00        |
| <b>Receivers' Certificates—</b> |                    |                  |
| Jan. 31, 1917.....              | 958,000.00         | 958,000.00       |
| July 31, 1916.....              | 958,000.00         | 958,000.00       |
| July 31, 1915.....              | 2,201,000.00       | 2,201,000.00     |
| Jan. 31, 1915.....              | 998,000.00         | .....            |
| <b>Total—</b>                   |                    |                  |
| Jan. 31, 1917.....              | \$1,185,811,486.16 | \$924,542,646.19 |
| July 31, 1916.....              | 1,415,628,563.00   | 1,110,099,090.00 |
| July 31, 1915.....              | 2,223,510,229.18   | 1,751,437,912.50 |
| Jan. 31, 1915.....              | 2,704,402,364.42   | .....            |

\*No market value determined for first compilation.

in the United States over 100 miles in length, of which number 105 companies reported securities held abroad. During the semi-annual period ended July 31, 1915, there were held abroad securities of the par value of \$2,223,510,229, having a market value of \$1,751,437,912, showing that there were returned securities of the par value of \$480,892,135, or 17.78 per cent for the six months. During the annual period ended July 31, 1916, there were held abroad securities of the par value of \$1,415,628,563, having a market value of \$1,110,099,090, showing that there were returned securities of the par value of \$807,881,666, or 36.33 per cent for the year. During the period August 1, 1916, to January 31, 1917, there were returned to the American markets securities of the par value of \$229,817,076, or 16.23 per cent for the six months.

"Therefore, from the date the first compilation was issued, showing securities held abroad amounting to \$2,704,402,364, there have been returned to the American markets securities

having a par value of \$1,518,519,878, or 56.15 per cent.

"There are no quotations on the American exchange for securities exchangeable for francs or pounds, and it is not probable there would be any transactions in such securities in this country. There have, however, been several cases whereby the issuing road took up its securities held in France. Further, where such bonds are in default, it may be that there will be issued in place thereof, when reorganization is carried through, bonds payable in dollars, but the amount of such bonds in default is not great."

### CHICAGO & NORTH WESTERN TRANSFER ENGINES

An example of the excellent results which can be secured with locomotives built for a particular service is found in the Class M-2 transfer engines which the Chicago & North Western is using in the Chicago switching district. By their use large reductions in the cost of both fuel and wages have been effected in the exacting special service for which they were intended. These engines are of the 0-6-0 type and have a total weight of 171,000 lb. with a rated tractive effort of 37,000 lb. The cylinders are 21 in. by 28 in. and the driving wheels 51 in. in diameter. They are equipped with superheaters, brick arches and power reverse gears and have an equivalent heating surface of 2,580 sq. ft. The tender has a capacity of 6,500 gal. of water and 10 tons of coal. Twenty of these locomotives replace 31 of the Class R-1 engines which were previously used in this service. These latter are saturated steam locomotives of the 4-6-0 type, with a total weight of 162,500 lb. and 2,508 sq. ft. of heating surface. The cylinders are 21 in. by 26 in., the driving wheels 63 in. in diameter, and the tractive effort 30,900 lb.

save considerable time by eliminating stops for taking water.

The M-2 locomotives are also equipped with the Baker valve gear, smoke burners and quick-opening blower valves. Other special devices which are standard to Chicago & North Western locomotives, such as removable side motion plates, flangeless shoes and wedges and solid end main rods have also been applied to this class. The principal dimensions of the engines are as follows:

#### General Data

|  |               |
|--|---------------|
| Gage   | 4 ft. 8½ in.  |
| Service                                      | Transfer      |
| Fuel   | Bit. coal     |
| Tractive effort                              | 37,000 lb.    |
| Weight in working order                      | 171,000 lb.   |
| Weight on drivers                            | 171,000 lb.   |
| Weight of engine and tender in working order | 298,000 lb.   |
| Wheel base, driving                          | 11 ft. 6 in.  |
| Wheel base, total                            | 11 ft. 6 in.  |
| Wheel base, engine and tender                | 47 ft. 6¾ in. |

#### Ratios

|   |               |
|---|---------------|
| Weight on drivers ÷ tractive effort                             | 4.62          |
| Total weight ÷ tractive effort                                  | 4.62          |
| Tractive effort × diam. drivers ÷ equivalent heating surface*   | 732           |
| Equivalent heating surface* ÷ grate area                        | 78.9          |
| Firebox heating surface ÷ equivalent heating surface,* per cent | 5.89          |
| Tube heating surface ÷ firebox heating surface                  | 12.01         |
| Weight on drivers ÷ equivalent heating surface*                 | 66.28         |
| Total weight ÷ equivalent heating surface*                      | 66.28         |
| Volume both cylinders   | 11.22 cu. ft. |
| Equivalent heating surface* ÷ vol. cylinders                    | 229.8         |
| Grate area ÷ vol. cylinders                                     | 2.96          |

#### Cylinders

|                     |                  |
|---------------------|------------------|
| Kind                | Simple           |
| Diameter and stroke | 21 in. by 28 in. |

#### Valves

|                   |        |
|-------------------|--------|
| Kind              | Piston |
| Diameter          | 12 in. |
| Greatest travel   | 6½ in. |
| Outside lap       | 1 in.  |
| Inside clearance  | 0 in.  |
| Lead in full gear | ¼ in.  |

#### Wheels

|   |                  |
|---|------------------|
| Driving diameter over tires                   | 51 in.           |
| Driving, thickness of tires                   | 3½ in.           |
| Driving journals, main, diameter and length   | 9½ in. by 12 in. |
| Driving journals, others, diameter and length | 9½ in. by 12 in. |



Transfer Engine for the Chicago & North Western Which Has Given Especially Good Service

The tender has a capacity of 7,500 gal. of water and 10 tons of coal. These locomotives have now been transferred to branch line freight traffic.

The main hauls on which transfer locomotives are used on the North Western in Chicago are between Fortieth avenue and Proviso, a distance of about nine miles; between Fortieth avenue, Wood street and Grand avenue, and also between Wood street and Proviso. On the line between Fortieth avenue and Proviso the maximum grade westbound is 0.92 per cent, and is about one-quarter mile long. Eastbound the maximum grade is 0.8 per cent and is of approximately the same length. The Class M-2 locomotives will handle 3,000 tons over these grades and will handle 2,000 tons in the yards. As a rule two round trips are made each day between Fortieth avenue and Proviso aside from the switching done in the yards. In this service the Class M-2 locomotives use about five tons of coal in 11 hours. The Class R-1 engines in the same service used about 7½ tons of coal. The material decrease in the water consumption effected by the Class M-2 locomotives on account of the superheaters has been found to

#### Boiler

|                                    |                     |
|------------------------------------|---------------------|
| Style                              | Straight            |
| Working pressure                   | 180 lb. per sq. in. |
| Outside diameter of first ring     | 66 in.              |
| Firebox, length and width          | 72½ in. by 65¼ in.  |
| Firebox plates, thickness          | ¾ in.               |
| Firebox, water space               | 4½ in.              |
| Tubes, number and outside diameter | 160—2 in.           |
| Flues, number and outside diameter | 22—5¾ in.           |
| Tubes and flues, length            | 16 ft. 0 in.        |
| Heating surface, tubes             | 1,333 sq. ft.       |
| Heating surface, flues             | 492 sq. ft.         |
| Heating surface, firebox†          | 152 sq. ft.         |
| Heating surface, total             | 1,977 sq. ft.       |
| Superheater heating surface        | 402 sq. ft.         |
| Equivalent heating surface*        | 2,580 sq. ft.       |
| Grate area                         | 32.7 sq. ft.        |
| Smokestack, diameter               | 16 in.              |
| Smokestack, height above rail      | 14 ft. 5¾ in.       |
| Center of boiler above rail        | 8 ft. 7 in.         |

#### Tender

|                               |                |
|-------------------------------|----------------|
| Tank                          | Rectangular    |
| Frame                         | Cast Steel     |
| Weight, in working order      | 127,000 lb.    |
| Wheels, diameter              | 33 in.         |
| Journals, diameter and length | 5 in. by 9 in. |
| Water capacity                | 6,500 gal.     |
| Coal capacity                 | 10 tons        |

\* Equivalent heating surface = total evaporative heating surface ÷ 1.5 times the superheating surface.

† Includes arch tube heating surface.

# Congressional Inquiry on Railroad Regulation

Robert S. Lovett Amplifies His Views on Regulation  
Before Committee—Statement by Julius Kruttschnitt

ROBERT S. LOVETT, chairman of the executive committee of the Union Pacific System, occupied the witness stand at the hearing before the Joint Congressional Committee on Interstate Commerce at Washington all of last week. His direct statement, an abstract of which was published in last week's issue, was completed on Tuesday, and he was questioned during the remainder of the week by members of the committee. Julius Kruttschnitt, chairman of the executive committee of the Southern Pacific, took the stand on Monday and made a statement to the committee, an abstract of which follows:

## STATEMENT BY JULIUS KRUTTSCHNITT RAILWAY CREDIT IMPAIRED

The present condition of the credit of American railways is not good. For instance, the cost of money borrowed by the state and by the city of New York is between 4 and 4.25 per cent. The cost of money to the Southern Pacific for the last four years has been 5.21 per cent. The recent quotations of 6 per cent stocks of four prominent national banks averaged 162, while quotations of the stock of the Atchison, Topeka & Santa Fe, Southern Pacific, Northern Pacific and Chicago & North Western, the first two paying 6 per cent and the latter two paying 7 per cent, averaged 105. Quotations of four national bank stocks paying 8 per cent averaged 225, while the Union Pacific, paying 8 per cent, is quoted at 138. The credit of American railways is not as good as the public interest requires, because they cannot sell their bonds at rates of return on money at which large states and municipalities can do so. Therefore the public has to be coaxed or persuaded by higher rates of return to take railroad securities.

Instances of financial mismanagement and dishonesty on the part of railway managers or financiers are exceptional and do not determine the condition of railroad management in the United States. There have been instances of dishonesty on the part of national bank managers, but such instances have not shaken the confidence of the people in banks generally. For the years 1912 to 1915 there were 64 receiverships of railways, of which comparatively few, not over 6 or 8 per cent of the whole number, were due to dishonesty or fraudulent management, but these few cases should not stamp the general management and operation of all railways as dishonest to nearly the same extent as the 23 out of a total of 46 national bank failures in the same year, caused by dishonesty and fraud, as evidenced in the report of the comptroller of the currency for 1916, should stamp the whole national bank system as bad and in need of drastic and destructive regulation.

The causes for the decline of railway credit may be traced almost entirely to the hostile and vindictive spirit of legislative and regulating bodies and the resulting nature of many of the phases of regulation and management they have prescribed. Government regulation of national banks has been constructive. The regulations made are fair to the shareholders as well as to the public. Their credit has in no wise been impaired by regulation and under it they have prospered. All their shares are eagerly sought as most safe and conservative investments. On the other hand, the regulation of railroads by diverse agencies in many instances overthrows all principles of economic management, hampers the railroads by interfering in questions of management, subverts discipline and has a far more potent influence in affecting the credit of the carriers than the comparatively few cases of dishonest management.

At this point Mr. Kruttschnitt enumerated some of the burdens imposed on the carriers by legislatures and commissions, referring to train limit laws and full crew or "stuffed" crew laws, which he termed "the most uncalled for and useless expenditure ever imposed upon the carriers." In 1914, 166 railroads reported a total expenditure of \$28,703,983 in consequence of legislation regulating operation. A total of 2,991,776 reports of all kinds were filed with federal and other authorities in the fiscal year 1915. The preparation of these reports cost the carriers many millions.

Regulation originally intended to stop rebating and discrimination and to insure the reasonableness of rates, has been made to cover total revenue, which is generally fixed with reference to prosperous years, and at the present day the conduct of a large volume of business, at the lowest freight rates and the highest wages in the world, in an unusually efficient manner, producing large returns, marks the carrier as an object of suspicion and attack, the large earnings in some way being considered reprehensible. With the restraint upon the control of income and expenses imposed by regulation, forces are in operation, which, unless controlled, safe-guarded and checked, menace the stability of existing transportation facilities. There is no way of meeting this situation unless the interests of the shareholders and bondholders of railroads are reasonably protected, not only against the arbitrary and unreasonable exactions of organized labor, but by being relieved of unnecessary and unjustified expense.

## CAUSES FOR DECLINE IN CREDIT

Among the causes which have narrowed the market for railroad securities, Mr. Kruttschnitt mentioned the war in Europe, the existence of underlying liens and the consequent necessity for obtaining new money through inferior liens or without security or by stock issues; the danger which has become apparent to the investing public of financing too largely through bond and note issues involving fixed charges; the superior attractions of other classes of investment; the success of labor in enforcing its demands without arbitration and without investigation; the inability of the railroads promptly to increase their revenues to meet their need, the fact that although transportation is a business, business questions affecting it are largely determined by the exigencies of politics and by political and not business considerations, and by the increase in prices, which has decreased the purchasing power of income from securities.

The exigencies of politics unquestionably affect the attitude of commissions. In states where commissions are located it is noticed that orders for new stations are generally received about the time of elections. From time to time state commissions boast in their annual reports of the amounts they have taken from railroad revenues by reduced rates. This sum subtracted from revenues imposes severe burdens on the carriers while the reduction in rates often does not reach the consumers and in most cases bears an almost unappreciable proportion to the cost of the commodity.

## SAVINGS TO PUBLIC FROM RAILROAD EFFICIENCY

As a result of the rise of commodity prices of 115 per cent between 1895 and 1917 the purchasing power of the dollar has fallen from 100 to 45, or 55 per cent. The railroads are, therefore, in a position of being compelled by the law to accept payment for their services in debased currency worth only 45 cents on the dollar.

If rates had risen in proportion to the increase in commodity prices, the average rate per passenger mile in 1915

instead of being 1.985 cents would have been 2.956 cents, an increase of 50 per cent, and the freight rate would have been 1.216 cents instead of .732 cents, an increase of 66 per cent. These differences represent a saving to the public in the one year, 1915, of \$314,000,000 of passenger fares and \$1,340,000,000 on freight traffic, a total of \$1,654,000,000.

The cost of operation per train mile of the railways of the United States, as shown by the statistics of the Interstate Commerce Commission, increased from 92 cents in 1895 to 1.78 cents in 1915, an increase of 93 per cent. Universal bankruptcy was avoided only by heavy expenditures to make possible increased efficiency in train movement by hauling more tons of freight per locomotive. The average trainload of freight increased during this period from 190 to 472 tons, or 148 per cent.

Mr. Kruttschnitt presented the following table showing the average freight rate, the average cost per ton mile and net revenue per ton mile, dividing the train mile cost by the number of tons per train:

|           | Freight rate. | Cost per ton mile. | Net. |
|-----------|---------------|--------------------|------|
| 1895..... | 8.4           | 4.8                | 3.6  |
| 1915..... | 7.3           | 3.8                | 3.5  |

Taxes per mile increased from \$200 in 1907 to \$573 in 1914, or 186 per cent. In 1900, after paying operating expenses and interest there was left 20.4 cents of the dollar of railway earnings, of which the tax collector took 3.2 cents, or 16 per cent. In 1915, out of 15.7 cents left after paying interest and operating expenses the tax collector took 4½ cents, or 29 per cent. In 1908, 68 per cent of railway stock paid dividends and in 1915 only 58 per cent paid dividends, while the average rate on all stock fell from 5.4 per cent in 1908 to 3.8 per cent in 1915.

American railways are never complete. They are growing organizations and need sustenance for both growth and operation, like a boy, yet our system of regulation forbids railways to charge rates sufficient both to earn income on capital and to provide funds for growth. The relation between the amount of capital which involves fixed charges that must be earned under pain of bankruptcy and the amount of capital contributed by the owners represented by stock should certainly be not more than 2 or 3 to 1 or from 67 to 75 per cent for large companies, and not more than from 44 to 50 per cent for small companies. In 1890 the proportion of funded debt to total capitalization was 51 per cent. In 1915 it was 57 per cent.

#### INTEREST OF THE PUBLIC IN ADEQUATE TRANSPORTATION

The public's greatest interest is in adequate transportation facilities and not so much in low rates, which as to most commodities bear a very small proportion of their cost. Excluding low grade commodities, the percentage of the freight rate to the cost is so slight as to offer no justification to the dealer to substantially raise prices to the consumer. It may be stated with little fear of contradiction that the consumer seldom, if ever, profits from a lowering of freight rates.

New railroad construction has been falling steadily because investors have found railroad securities unproductive and will not purchase them except at rates of return which the railroads cannot promise. Dividends on a mortgage rate do not attract speculative capital and speculative capital is necessary to produce railway transportation in advance of its demonstrated necessity. There never was a scarcity of transportation when railway capital was allowed to earn good profits.

The evils which mainly led to the enactment of the Interstate Commerce Law have been practically eliminated. Such offenses may now be regarded as almost extinct. The discriminations of the present day are mostly presented by controversies between localities in which the real parties are competing markets or competing fields of production. The

carrier is simply the medium through which the rival claimants bring their disputes before the commission. There is another significant feature in the matters which are beginning to come before the commission, complaints calling for increased service and enlarged facilities, which require increased expenses and increased revenues.

No system of legislation or governmental regulation can be characterized as wise which shows passion, vindictiveness, unwillingness to give proper consideration to that part of the public that owns the railroads, which ignores constructive measures intended to secure the stability, adequacy and growth of the instrumentalities of commerce and which confines itself to the mere infliction of penalties and to the assumption of management and control of the properties instead of their regulation.

Extortionate charges are a thing of the past and under the attempt to cut rates to their lowest possible figure, the interest of the whole public in the character and standard of transportation, is subordinated to the interest of that part of the public only that profits by lower rates, that is to say, the shippers and their agents, and not the general public, the ultimate consumers. The interest of the shareholders, the holders of their bonds and the general public are all subordinated to the interest of organized labor and shippers. On account of the marked preference of the public for other railroad investments, it would seem that the time has come when careful review should be made of regulation and its benefits and shortcomings. Government regulation should possess the elements of simplicity and homogeneity to the greatest extent consistent with the public interest. It does not possess these now.

#### RAILROADS AND NATIONAL DEFENSE

Mr. Kruttschnitt emphasized the point that railroad transportation is perhaps the one most important essential of national defense after the collection of adequate land and naval forces. It is important to national defense, he said, that the standard of railroad efficiency should be established in times of peace. Under proper rules the transportation facilities of America are not inadequate to handle the increased business due to the war in Europe, but under the conditions of operation and rules prescribed by government bodies, they are totally inadequate to handle the increased business. Emergency rules are required in emergencies. The railroads cannot reduce free time at destination, cannot increase demurrage rates without the permission of commissions, and if the proposed rules are held in suspense from three to six months it is evident they cannot be of the slightest use in the emergency that prompted their imposition. The duty of national defense carries with it the duty to fix the standard of railroad efficiency by the national government, which should provide for its wants through the existing operating organization of the railroads and should not substitute its operating rules and judgment for the existing rules and judgment of the officers now operating the property. For the purpose of national defense alone, the railroads of the entire nation should arrange to place their facilities at the disposal of the government and to operate them as a unit.

Under normal conditions and with a volume of business such as moved in 1916, the earnings of most railroads would be adequate to pay fixed charges, fair dividends and some surplus, but the railroads should be able to do this with absolute certainty in order to make their securities attractive and the rates should be sufficient so that when applied to the volume of business carried in lean years, fixed charges, dividends and some surplus—though small—will be earned, an adequate surplus being provided by averaging the small surplus in lean years with the larger surplus yielded by an increased volume of business without increase of rates in the prosperous years.

There is no reason for the application to railroad com-

panies of the anti-trust laws, inasmuch as they are closely and absolutely regulated by government authority. The public interest certainly could not be affected by permitting railroad officers to agree upon rates, terms of service, schedules, etc., subject to the approval of the Interstate Commerce Commission.

#### LABOR

The laws should bear just as heavily on combinations of labor as they do on combinations of capital. There should be no discrimination. The railroads being public servants, should be kept in operation by laws that would hold all employees, whether designated as officers or laborers, to a strict accountability and should prevent either one or the other from combining to prevent the operation of the roads by conspiracies or other unlawful acts.

Mr. Kruttschnitt said the usefulness of the Newlands arbitration law would be greatly increased if it were made to apply to all railway employees instead of only to those engaged in train service. It is very important to the carriers that the Board of Mediation and Conciliation should be closely coordinated with, or better still, subordinated to the Interstate Commerce Commission so that the same authority responsible for increasing the expenses of the carriers should at the same time incur a corresponding responsibility in providing revenue to meet the expenditures. Provision should also be made that where the board offers its services, it shall be obligatory on and not optional with the parties to submit their differences so that the public may judge the dispute intelligently.

A report of the United States Board of Mediation and Conciliation on the operation of the Canadian Industrial Disputes Act shows that from 1907 to 1916 a total of 212 disputes were referred for adjustment under its provisions. The number of disputes where a strike was not averted or ended was 21. Reports of the satisfactory operation of the Canadian act and the conviction that like benefits would accrue by the adoption of its provisions in the United States, had induced Mr. Kruttschnitt to send an assistant to Canada to learn at first hand from the managers of Canadian railways and from the Canadian Department of Labor their experience with the operations of the act. The opinion alike of railway executives and of the commissioner of labor was that the act was satisfactory and very successful and that its provisions were most helpful in the interests of employer, employees and general public. If such a plan were adopted, he said, the board should be charged with the duty of securing settlements of all questions in dispute. The chairmanship should be a permanent position so that the incumbent should become thoroughly familiar with labor contracts. The Interstate Commerce Commission should name a member, the Federal Trade Commission a member, the railways one and the employees one. The decision would, therefore, rest with the permanent chairman, the member from the Interstate Commerce Commission and the member from the Federal Trade Commission. The public would thus have three representatives.

Mr. Kruttschnitt also discussed the abnormal conditions of railway traffic as a result of the European war. In the difficult circumstances confronting them, he said, the railroads have spent generously, although not as much as necessary, perhaps, to prepare for increased traffic. In the last 16 years they have spent over \$10,000,000,000 in miscellaneous capital improvements, but some of the most useful improvements that most quickly affect the economical, prompt and reliable movement of traffic have proceeded very slowly because of the difficulty of procuring money. The total capitalization of the railways in 1899 was \$11,033,955,000, on which a return of 3.72 per cent was earned. By 1907, or in eight years, 46 per cent was added to capitalization and 85 per cent to net income; 6.92 per cent was earned on the

added capital so that the return on the entire capital rose to 4.73 per cent in 1907. In the next eight years, to 1915, substantially the same amount was added to capital and 4.31 per cent less income was earned than in 1907. Five billions of new money yielded \$33,000,000 less than no return and the return on the total capital in railways fell from 4.73 per cent to 3.44 per cent. As 57 per cent of the total capital of railroads is funded debt, on which a fixed return of  $4\frac{3}{4}$  to 5 per cent must be paid, and the other 43 per cent is made up of stock on which the return is contingent on earnings, obviously the borrowing power at money rates approximating 5 per cent on a venture that for eight years earned on an average only 3.92 per cent on its capital cannot be great. The owners of the railways are unable to plan future improvements and capital expenditures with any certainty. Handicapped and embarrassed as the carriers have been, the way in which they have handled the increased traffic reflects the greatest credit on their managers. Greater efficiency in car loading and movement on a number of large systems has fully and in some cases more than made up for the deficiency in the number of cars. In the case of the Southern Pacific the miles per car per day increased in the past two years from 27.64 to  $42\frac{1}{2}$ , while the tons per loaded car increased from 20.78 to 24.33. In other words, better handling added 71 per cent to the Southern Pacific's freight equipment.

#### A PLAN FOR REGULATION OF CAR SUPPLY

Mr. Kruttschnitt also gave an interesting discussion on the subject of regulation of freight car supply. He said that statistics show that normally a surplus of cars has prevailed in the United States and in the past 10 years an idle surplus has stood on yard and side tracks 93 days out of every 100, that the maximum surplus at any one time was 20 per cent of the total equipment and the maximum shortage at any one time was but  $6\frac{1}{2}$  per cent. A very slight increase of efficiency in the use of equipment would offset the comparatively few shortages. Inasmuch as the circulation of freight cars is analogous to the circulation of money, Mr. Kruttschnitt said, valuable suggestions may be found in a study of the latter problem. He suggested that each carrier as a condition precedent to engaging in interstate commerce should be required to contribute to a box car reserve a percentage of its box cars based on its use of such cars. The administration of the box car reserve should be placed under a commissioner with plenary power assisted by the necessary staff and reporting to the executive committee of the American Railway Association. Standards of condition, capacity, etc., for box cars to be accepted as contributions to the reserve should be prescribed and they should be rated according to capacity and permanently marked. A per diem rate 10 to 20 per cent higher than for other cars should be assessed for the reserve cars. The commissioner should be clothed with ample authority to assess penalties for failure to obey such rules and instructions as might be adopted. A \$3 straight demurrage rate should be imposed. Free time should be reduced whenever possible. Roads should be required in times and places of car surplus to hold reserve cars idle on their lines if not needed elsewhere with remission of per diem. Roads with a surplus of cars should be required to equalize with lines showing deficits. Repairs and maintenance of reserve cars and administrative expenses should be paid by the commissioner out of the per diem earnings on such cars. Such a plan, of course, he said, cannot be successfully carried on without the approval of the Interstate Commerce Commission.

#### CROSS-EXAMINATION

Judge Lovett was cross-examined by various members of the committee on his direct statement.

Chairman Newlands asked whether it would be wise to

attempt to bring about co-operation between the state and federal commissions rather than the forced control by the federal government.

"I do not understand that there is any conflict of authority," replied Judge Lovett. "I understand that wherever Congress has jurisdiction of the subject it has all the power necessary to make that jurisdiction effective and if there is any state right that is inconsistent with the proper exercise of that power, that state power yields because the federal power is paramount. I do not agree at all that there are differences between the state and federal governments to be reconciled by negotiation or treaty or otherwise. Either one or the other has the authority. And experience with the activity of state commissions satisfies railroad men that it is impossible to maintain any rate adjustment that will reduce discriminations unless the rate making power is unified in a single control."

Representative Adamson asked whether, in order to avoid opposition, it would not be a wiser plan to make federal incorporation permissive rather than compulsory. "I do not believe that such a bill would get anywhere," was the reply. "I think the state commissions, most of them, would oppose it. I do not believe that any state will voluntarily give up any power it has. I think I know something about the sentiment of the southern states and I do not believe they are any more contentious for state rights than any other states in the Union."

Senator Cummins asked his opinion of Senator Underwood's proposal that the commission be given power to fix all wages and salaries, as well as the hours and conditions of labor, from the highest officer of the corporation to the lowest employee. Judge Lovett replied that he would have no objection to that, but he believed it would put more work on the commission than is necessary and for the same reason that he believed it would be a mistake to make it the duty of the commission to fix all rates. He thought the authority should be confined to the adjustment or settlement of disputes when they arise.

Senator Cummins asked Judge Lovett's opinion as to a plan for a consolidation of railroads into regional groups or systems, each made up of a number of strong and weak roads. "Assuming," he said, "that at any given time the roads carrying 80 per cent of the traffic have sufficient revenues under existing rates, and that the roads carrying 20 per cent of the traffic need \$50,000,000 more than they are receiving, the question that is uppermost in my mind is how to give to these weak roads without giving to the roads that do not need any more, \$200,000,000."

"I do not know of any way in which it can be done," replied Judge Lovett, "unless you remove one restriction. The impossible factor in the problem which you present is the statement that what is desired is to give these roads that constitute 20 per cent the revenue that they need without giving the other roads revenue they do not need. You are assuming that the earnings from a railroad company must absolutely be limited to a certain per cent. I do not understand that that is an accepted theory in our railroad regulation. If the railroads that are carrying 80 per cent of the traffic of the country are so situated, even though they are earning a return upon their property, that without unreasonable charges the rates can be so adjusted that they earn a little more than these other roads, I see no reason why it should not be done if the traffic can stand it without prejudice or injury. There are some roads and always will be some roads that cannot, under any system of rates that can be devised, earn enough money to provide the facilities that they ought to furnish. Those roads are simply insolvent. It was a mistake to build them and owners will have to lose their money."

Representative Sims asked if the movement on the part of the railroads to bring about a change in the methods of railroad regulation is not a "political movement to affect legislation through public sentiment." Judge Lovett replied that he

thought that if the public were fully informed and understood the exact railroad conditions, public opinion would force legislation along the lines the railroads have advocated, and that the greatest blessing that could come to the railroads would be that the people should know the exact railroad conditions.

"We felt," he said, "that while we realized the importance of this legislation, probably we would hurt the cause more by advocating it than otherwise, but we felt that it was our plain duty to present what we believe was a constructive plan of legislation regardless of the consequences and because we are convinced that the responsibility for the future development of the railroads of this country should fall on Congress rather than on us, we felt that it was our duty to present to Congress honestly what we think the situation requires."

The evils of diversified regulation of railroads simultaneously by the states and the federal government, have not yet been fully developed, Mr. Lovett said. The mere fact that railroads continue to exist, he said, and that some of them earn good returns on their properties, does not mean that this condition will prevail indefinitely under the present dual system of regulation, because restrictive state legislation has developed rapidly in the last ten years, and new restrictions are constantly being suggested. In advocating a unified control of railroads, Judge Lovett said, the railroads are seeking to protect their properties before the restrictive possibilities of state regulation attain their complete effect.

"If none of these things which you suggest are done," asked Representative Sims, "or something else that will have the same effect, what will be the effect upon this country and its general welfare?"

"I think, Judge Sims," was the reply, "that if the present system or lack of system of regulation is continued there will be stagnation in railroad development and that the people will not have the character of railroad transportation that the business interests of the country require, that that condition will continue until sooner or later something along the lines we have proposed will be done."

It was expected that the hearing would be adjourned on Thursday, at least until after the organization of the House of Representatives at the extra session of Congress.

## SUIT TO DIVORCE CENTRAL PACIFIC FROM SOUTHERN PACIFIC FAILS

The suit of the United States government to separate the Central Pacific from the Southern Pacific on the grounds that they were competing lines and that their joint operation constituted a restraint of trade in violation of the Sherman anti-trust act of 1890 was decided in the United States District Court of Utah on March 10, 1917, in favor of the defendants. Circuit Judges W. H. Sanborn of St. Paul, Minn., and William C. Hook of Leavenworth, Kan., who delivered the majority opinion, pointed out that the two roads had been built by the same parties and from the beginning had been operated as one system. They said:

"If the anti-trust act be construed to reach proprietary relations, as distinguished from those of a mere continuous operating character, formed long prior to its passage, whereby divergent or tangential lines of road to widely separated gateways or points in the currents of traffic movement are held in a single ownership or control, its enforcement accordingly would have such a destructive effect upon established, accepted railroad systems of the country that their inclusion within the intent of Congress may well be doubted."

Unlike the Union Pacific and the Southern Pacific, which were originally independent competitors before being merged, the Central Pacific and the Southern Pacific were never separately operated and the court was of the opinion that they could not be divorced under the anti-trust act to create a condition of competition which never existed. The argument of the government was that the single operation of the

two roads prevented competition between the rail and water line of the Southern Pacific between the Pacific coast and the Atlantic coast via the ports of Galveston and New Orleans on the one hand and the all-rail line via Ogden on the other hand of which the Central Pacific formed the western end between Ogden and San Francisco. The court agreed that competition between these two routes might result from an enforced independence of the two companies and a separation of their lines, but it did not think the Sherman law was intended to create competition by destroying a proprietary relation formed long before its passage and by the very means of which a railroad system has been brought into existence.

The majority opinion also stated that the unity of the Central Pacific and the Southern Pacific lines has long been recognized by the government and received its official recognition and acquiescence in 1899, when a commission composed of President McKinley, the secretary of the treasury and the attorney-general invited the Southern Pacific to participate in the settlement of the Central Pacific's debt to the government and consented to a plan which involved the acquisition by the Southern Pacific Company of the stock of the Central Pacific. The debt involved amounted to \$58,000,000 due to the government for aid in the construction of the Central Pacific. The Central Pacific being unable to pay, the Southern Pacific discharged the debt out of its own resources and credit with the full knowledge and sanction of Congress and the special commission created for the purpose of effecting a settlement.

In reply to the contention that the control of the Central Pacific by the Southern Pacific was in violation of the Pacific railroad acts, the court stated that those statutes merely required physical connection with the Union Pacific to make a through line from the Missouri river to the Pacific coast and the furnishing of equal advantages and facilities as to rates, time and transportation without discrimination of any kind. If those requirements are met, the opinion stated, it does not seem material whether they are performed by the Southern Pacific as lessee and stockholder or by the Central Pacific independently.

A dissenting opinion was delivered by Judge C. J. Garland. He said in part: "As the breaking up of an unlawful combination does not create natural competition, but simply removes the barriers which prevent the free flow of interstate commerce, the concession that there might be competition if the combination was broken, is also a concession that there is natural competition which is suppressed by reason of control of the Central Pacific by the Southern Pacific. The combination which is complained of in this case is alleged to have originated in 1899 in the acquirement of all the stock of the Central Pacific by the Southern Pacific. The fact that prior to the passage of the anti-trust law there had been a practical control of the Central Pacific by the Southern Pacific through a leasing arrangement in no way validates the present combination if it be unlawful. The evidence in the record, in my opinion, establishes beyond question that the Southern Pacific extending from San Francisco Bay to New Orleans, with its steamship connection with New York, is a natural competitor of the Central Pacific, both as to California-Atlantic seaboard freight and central and western United States freight to and from California. If they are competitors and the Southern Pacific, as it is admitted, controls the Central Pacific, it follows that the free flow of interstate commerce is restrained. The settlement by the United States of the debt of the Central Pacific in 1899 cannot be held to estop the United States from insisting at this time that the combination between the two roads is in violation of the anti-trust act. It is not remarkable that in the proceedings resulting in the settlement so far as they appear of record, the anti-trust law was not referred to, as little attention was given in those days to the anti-trust

law of July 2, 1890. Finally, I am unable to reconcile the decision of the Supreme Court in the case of the United States vs. the Union Pacific Railroad Company (226 U. S. 61) with the conclusion reached by the majority in this case. If it is unlawful for the Union Pacific, being one section of a through line to control the Southern Pacific, why is it not unlawful for the Southern Pacific to control the other section of the through line."

As was pointed out by the majority of the court, the Central Pacific-Southern Pacific system throughout its history has had all the aspects of a single enterprise except as to corporate titles and bookkeeping. The Central Pacific Railroad Company was incorporated in 1861, but the first construction work was not begun until 1864, when, with the aid of the government, a line was built eastward which met a line built westward by the Union Pacific near Ogden, Utah, in 1869. The Southern Pacific Company was organized in 1865 to build a line from San Francisco to San Diego and thence eastward to connect with a contemplated line from the Mississippi to the southeastern boundary of the state. C. P. Huntington, Leland Stanford, Mark Hopkins and Charles Crocker promoted both enterprises. For a time the Central Pacific was the more important of the two lines and the system was known as the "Central Pacific Railroad and Leased Lines." In February, 1885, the Southern Pacific having become the major factor, the relation was reversed and the Central Pacific leased all its railroads to the Southern Pacific for 99 years. With the development of the system, different connecting parts were built by either of the constituent corporations as chance or convenience might dictate. As a result the divorce of the two lines at the present time would involve a practical dismemberment of the Southern Pacific System and the costly construction of parallel lines, the duplication of terminals and the formation of trackage agreements to close up the gap effected by the dissolution. Among the most important links in the system which would be taken away, leaving the Southern Pacific without terminals, would be the main line from Oakland Pier, Cal., to West Oakland, Oakland Pier to Elvas, Sacramento to near Ogden, Utah, Roseville, Cal., to the Oregon state line, Niles, Cal., to San Jose, Niles Junction to Redwood Junction and Lathrop to Goshen. Among the branches which would be lost would be those from Sacramento to Walnut Grove, Chico to Stirling City, Oakland to Antonio Junction, Fernley, Nev., to Westwood, Cal., Weed to Kirk, Ore., Mojave, Cal., to Owenyo, San Francisco to Oakland Pier and others.

An interesting commentary on the case just closed is that the government did not produce a single witness from the shipping public to complain of the alleged competition-destroying combination. The Southern Pacific, on the other hand, offered the testimony of shippers and representative bodies throughout the communities served by it to the effect that the dissolution sought by the government was opposed with practical unanimity by those for whose benefit the government was assuming to act.

**STEEL WORKS FOR NORWAY.**—Norway, which exports large quantities of iron ore, possesses no steel works of her own, and is dependent entirely upon imports from abroad. With a view to remedying this state of affairs a syndicate has recently been formed for the purpose of erecting large steel works in the neighborhood of Christiania, at Drammen, on the Drammensfjord. The imports from Germany and Austria, both of which countries are using nearly the whole of their production, already show a decline of 75 per cent, and may soon cease altogether. Norway has recently received practically nothing in the way of manufactured steel from England, and none at all from Belgium. Imports from America are extremely expensive and difficult to obtain owing to the shortage of tonnage.

## NEW CLEARANCE ORDER IN ILLINOIS

As a result of a petition filed by the Atchison, Topeka & Santa Fe and 21 other railroads doing business in the State of Illinois, for a modification of ruling No. 17 relating to clearances which was adopted by the Illinois Public Utilities Commission on February 19, 1915, the commission declared this clearance ruling null and void and substituted a new clearance order, which became effective February 14, 1917, for all new construction and reconstruction. The new clearance order is less severe than the one it replaces, in some respects. Distinctions are made between tracks used entirely for passenger service and those used in general service. In overhead clearance a distinction is made between overhead bridges and overhead members of a through bridge. Exceptions from the specified side and overhead clearances for bridges and buildings are permitted at engine houses, car shops, freight houses, coal chutes and similar structures. All limiting dimensions are based on distances from the center line of the track or the top of rail, rather than on the clearance between the side or the top of rolling stock and the structures.

The ruling provides that the distance, center to center of main tracks, shall be not less than 13 ft. 6 in., except when these main tracks are used only for passenger service, in which case the spacing may be 13 ft. The distance from a main track to an adjoining side track shall be not less than 15 ft., except that the distance to adjoining ladder tracks with hand-operated switches must not be less than 17 ft. from the main track. When two ladder tracks are adjacent they shall be placed 17 ft. center to center if provided with mechanically-operated switches, and 19 ft. center to center if the switches are thrown by hand. Tracks other than main or ladder tracks used only for passenger service must be spaced not less than 13 ft. center to center, but the distance between any two such tracks may be less than 13 ft., provided the spaces on the other sides of these tracks are not less than 13 ft.

Freight tracks for other uses than as main or ladder tracks shall be spaced 13 ft. 6 in., provided, however, that team tracks may be less than 13 ft. 6 in. center to center if team ways are provided on either side of each pair of tracks. Exception is also made in the case of one or more tracks adjacent to a freight loading platform. A spacing of less than 13 ft. 6 in. is also permitted, providing there is a clearance of at least 8 ft. from the center line of one outside track to an adjacent building, or that the spacing between at least one pair of tracks shall be 13 ft. 6 in.

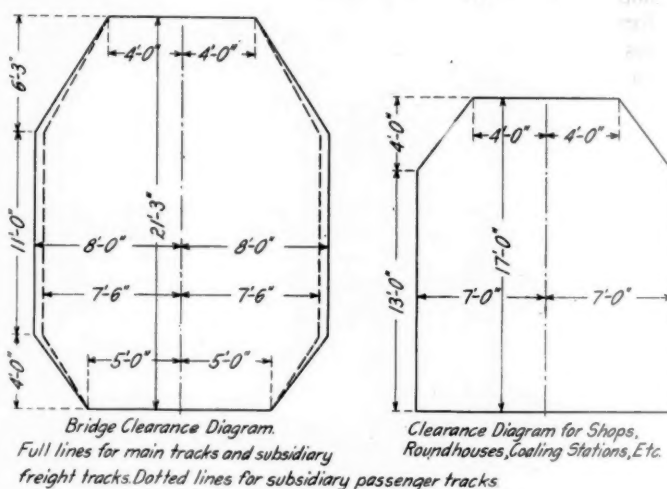
The bridge clearance diagram shown in the drawing is intended for through bridges supporting the track under consideration. In the case of tracks passing under an overhead bridge the vertical clearance is increased from 21 ft. 3 in. to 21 ft. 6 in. An exception is made for subsidiary passenger tracks, in that the side clearance may be reduced to 7 ft. 6 in. The building clearance is the same as the overhead bridge clearance, except that no fillet is permitted in the lower corners. The same exception is permitted for subsidiary passenger tracks in that the side clearance is reduced to 7 ft. 6 in. and in passenger terminals to 7 ft.

For freight platforms both a maximum and a minimum clearance is provided, since it is stated that platforms for unloading freight from cars shall have their edges not less than 5 ft. 6 in. nor more than 5 ft. 9 in. from the center of the track. High passenger platforms may be less than 8 ft. from the center line of the track if the cars have gates which are kept closed when trains are in motion. Passenger platforms not over 8 in. in height above the top of rail may be not less than 5 ft. 1 in. from the center line of track. If not over 4 in. high above the top of rail they may be not closer than 4 ft. 6 in. from the center line of track.

Switch stands, dwarf signals, water cranes, water tanks, signal posts and similar structures are covered in detail in the

order. Switch stands not over 2 ft. 10 in. high and dwarf interlocking signals not over 2 ft. 8 in. high may come within the specified clearances. Switch stands from 2 ft. 10 in. to 4 ft. in height must have a lateral clearance of 8 ft., and if over 4 ft. in height a lateral clearance of 8 ft. 3 in. For subsidiary freight tracks these clearances must be 7 ft. 6 in. and 8 ft. respectively and for subsidiary passenger tracks 7 ft. and 7 ft. 6 in. Water cranes must have a clearance from main track of 8 ft. 3 in.; from subsidiary freight tracks of 8 ft. and from subsidiary passenger tracks of 7 ft. 6 in. Water tanks must have a lateral clearance of 9 ft. to a height of 15 ft. above the top of rail. Semaphore signal posts must clear the main track 8 ft. 6 in., while for other tracks the clearance is the same as for buildings. Roadway signs must have a clearance of 9 ft. Fences where required between passenger tracks at stations must have a height not exceeding 4 ft. 6 in. Material piles must clear a main track 9 ft. and side tracks 8 ft. 6 in. No definite ruling is given for mail cranes, but plans showing lateral clearances must be submitted to the commission for approval before such devices are constructed or reconstructed.

The overhead clearance for bridges and other structures may be departed from in the case of passenger tracks at stations, coach yards and similar locations for any tracks other than main tracks. Overhead transfer bridges at freight



houses, icing platforms, etc., may have a vertical clearance of less than 21 ft. 6 in., provided such overhead bridges may be lifted to the full clearance whenever cars are to be moved. Exceptions are made from the building clearances for canopies at passenger terminals and freight houses, provided that these exceptions do not hold in the case of awnings or canopies, spanning tracks or supported at the sides of tracks not owned by railroad companies, but operated by them. A reduced clearance, both lateral and vertical, is permitted on tracks serving engine houses, car shops, freight houses, coal chutes, elevators, warehouses and similar structures, as shown in the diagram. This vertical clearance is here reduced to 17 ft. and the lateral clearance to 7 ft. In the case of mine tipples the vertical clearance may be reduced to 17 ft., but a lateral clearance of 8 ft. is required.

The order calls attention to the fact that the clearance rules given are for tangent tracks and the necessary compensation must be made for tracks located on curves. The order also provides for the erection of warning signals and the issuance of rules to warn employees from locations where the clearances are reduced in accordance with the provisions of the order. The provisions of the order outlined above apply to railroads, "steam type." Separate rules are also provided for railroads, "electric types," and for street railways.

# Railroads Ask Advance in Freight Rates

Interstate Commerce Commission Asked to Amend Rules  
and Consider Application for Flat Percentage Increase

**W**ITHIN the past week executive officers of the eastern, western, southern and southwestern groups of roads have appeared before the Interstate Commerce Commission to urge an immediate advance in freight rates to offset the increased expense of higher wages to their train employees, necessary increases in wages for other employees and the even greater increases in operating expenses caused by higher prices for fuel and other materials and supplies. The railways have also announced their intention of immediately asking all state commissions for a similar advance in freight rates.

The roads in Official Classification territory on March 23 formally petitioned the commission to amend its rules so as to permit an application for a flat percentage increase to be made by simple amendment to existing tariffs, thereby avoiding the necessity for filing complete new tariffs, and the western, southern and southwestern roads have announced their intention of taking similar action. For the eastern lines it was announced today that the advance to be asked would take the form of a general advance of 15 per cent on all freight rates except those on coke and ore, which it is proposed to increase 10 cents per ton, and on bituminous coal, on which advances have already been asked in a proceeding now before the commission, ranging from 5 to 10 and 15 cents per ton. The roads have also asked that the commission forego a suspension of the proposed tariffs and hold such hearings as may be necessary as promptly as possible.

The commission has not yet indicated in any way its attitude toward the application of the carriers, except that some of the commissioners asked questions indicating some doubt as to whether the method of procedure proposed can properly be followed. The commission has already heard of some protests by shippers, but a delegation representing the Chicago Association of Commerce and a number of representatives of shippers from that city have indicated their willingness to support the roads if the existing differentials between rail and lake and rail rates can be preserved.

An informal announcement of the plans of the carriers with an urgent request for prompt action by the commission was made at a conference with the commission on Thursday, March 22, by a delegation of executives of the principal eastern roads headed by Samuel Rea, president of the Pennsylvania Railroad. The conference had been arranged for in advance by George Stuart Patterson, general solicitor of the Pennsylvania, on behalf of the eastern lines, and was held in the hearing room of the commission at the close of the valuation hearing. Mr. Rea made the principal statement for the roads.

## STATEMENT BY SAMUEL REA

"We are here on what we regard as a very serious question," he said. "We realize the condition of the railroads to-day presents a menace to the country, not only to the owners of the properties, but as affecting directly the international situation. It is absolutely essential that the railroads of this country shall be in splendid working order, not merely in workable condition, but in a position to fulfil their full duties to meet what we all believe is coming and do it effectively and properly. Under the present conditions, rates and revenues of the carriers, we believe that to be impossible. Having given the matter serious consideration, we have come here to present our case informally, so that we may have your suggestions and help.

"Uppermost in our minds is that we are facing a national

emergency, in which the railroads must be a most efficient arm to place at the disposal of the country, its industries and the public. But even apart from what the national emergency may require, we are already confronted with increased expense on account of the fuel supply, materials, wages and taxes, as well as the increased difficulty of raising new capital on reasonable terms on account of the existing conditions. An examination of the conditions which the carriers are facing and will face in the immediate future convinces us that there will be a serious reduction in the net operating income of the carriers, due to several causes. In the latter part of 1916 the carriers, although having increased operating revenues, were confronted with a serious decrease in net operating income, brought about particularly in items of increasing cost. For the Class I roads in the eastern district from October to January, inclusive, gross earnings increased over \$50,000,000, while the operating income decreased \$17,000,000. We feel it will hurt the situation materially if, while the industries and manufacturing concerns are strong and prosperous and require the most effective transportation, the railroads shall be found weak."

Mr. Rea said that the seven roads particularly interested in the coal rate case, the Pennsylvania, New York Central, Baltimore & Ohio, Norfolk & Western, Chesapeake & Ohio, Virginian, and Western Maryland, consumed during 1916, 37,000,000 tons of fuel coal purchased at an average price of \$1.21 per ton. Upon attempting to make contracts for coal for the ensuing year they are confronted with greatly increased prices and it seems more than probable that the increase will average at least \$1 per ton. This means an added cost to these seven roads of over \$37,000,000. Moreover, there is a constant increase in the prices of most classes of materials and supplies, which is only beginning to be fully reflected in operating expense and capital accounts. On the Pennsylvania lines east of Pittsburgh the principal articles of consumption have advanced in price about 78 per cent in 1917, as compared with 1915. Material which cost \$17,020,000 at the 1915 prices would cost at the January, 1917, prices \$30,296,000. The price of axles had advanced 173 per cent, steel bridge material 148 per cent, steel plates 244 per cent, tie plates 88 per cent, rails 33 per cent and equipment approximately 50 per cent.

In order to compete in the labor market with industrial concerns the Pennsylvania lines east of Pittsburgh had been obliged to increase the pay roll for employees other than trainmen since January 1 by approximately \$4,800,000 a year, while the increased wages under the Adamson law would add \$9,000,000 to the payroll and \$13,500,000 to that of the entire Pennsylvania System. Even with this increase in the rates of pay, he said, there was a constant change and unrest in the forces, which reduced efficiency per dollar expended for labor.

Taxes on the seven roads mentioned had increased 91 per cent in 10 years, or \$16,280,000; the Federal income tax has been increased from 1 to 2 per cent, and in 1917 taxes will be further increased, because of the new Federal capital stock tax, which means an additional payment by these seven lines of \$825,000.

Beginning with October, 1916, there had been a general decrease in net operating income, so that for the four months from October to January, inclusive, the gross operating revenue of these seven roads had increased \$20,810,000, or 7.31 per cent, but the railway operating income had decreased

\$4,728,000, or 5.76 per cent. During these four months the gross earnings of the Pennsylvania system had decreased \$9,600,000, while net operating income had decreased \$5,700,000. The rate of return on investment and road and equipment in January, 1917, was on the basis of 3.20 per cent per annum, as compared with 4.52 per cent in January, 1916. February shows a slight decrease in gross earnings, while the operating income was reduced by over \$3,000,000. For January and February combined, the operating income was reduced by \$4,600,000.

For the seven years ending June 30, 1916, the net operating income for the seven roads was 4.84 per cent. With such a small rate of return and confronted by further rising costs, the carriers cannot hope to secure on advantageous terms the capital needed for tracks, terminals, equipment and stations. Railroad securities must be made sufficiently attractive to compete with other investments if the roads are to secure the money to continue to meet the traffic demands.

Mr. Rea summed up the increase in expenses anticipated for 1917, as compared with 1916, for the Pennsylvania system, as follows: Taxes, \$500,000; fuel, \$10,200,000; increased price of materials, \$11,000,000; wages, Adamson law, \$13,500,000; wages, other employees, \$7,400,000; total, \$42,600,000. In the record year, 1916, the surplus over dividends for the Pennsylvania System averaged 6.09 per cent, or about \$35,000,000, while the expected increase in expenses for 1917 amounts to \$42,000,000, or \$7,000,000 more than the 1916 surplus.

"With such widespread and pressing demands for larger terminals, greater facilities and more equipment," said Mr. Rea, "it is essential that the roads be granted the higher rates necessary to place them in a position to meet such rising costs and give them the earning basis to attract new capital for the additional transportation facilities and service. If this is not done, it means curtailment of expenditures in a period of the greatest demand for railroad transportation service this country has ever known. We especially invite the views and suggestions of the commission as to how to meet the situation. We suggest that the commission will realize the importance of having the roads in a stronger financial condition and that the increased rates required will be promptly granted without any suspension of the tariffs in order to avoid the tremendous delay and expense of compiling and publishing tariffs. It is our judgment that out of your long experience and thorough knowledge of the situation, and we believe it to be within your power, that you should, after due consideration, decide this question out of hand without any suspension."

#### STATEMENTS BY OTHER EASTERN EXECUTIVES

A. H. Smith, president of the New York Central, said that, according to the best estimate, materials, exclusive of fuel, would cost his system \$15,000,000 more than in 1916; fuel would cost \$6,000,000 more, and labor would cost \$8,000,000 more. The railroads cannot compete with the mills and factories for labor without paying higher wages, and it is then difficult to keep the men in service. The company's surplus in 1916 was \$33,000,000. The eight-hour law will increase the expenses by nearly 3 per cent of the freight revenues. Increases for other employees will make a total increase in wages of 6.26 per cent and the increase in material and fuel will be 16.4 per cent, making a total of 22½ per cent of the freight revenues. He also explained to the commission that his company had tried to sell stock, but has been unable to do so because stock had fallen below par.

Howard Elliott, chairman of the New York, New Haven & Hartford, said that labor conditions had been particularly difficult in recent months and that since December, 1916, his road had had something like 75 strikes. The company had been experiencing difficult conditions for several years, but conditions are even more severe at the present time in the way

of increased operating expense. For the calendar year, 1917, the company is faced with increased expense on account of the Adamson law of \$1,500,000; other increases in wages \$2,500,000; increased cost of fuel \$3,300,000, and of other material \$3,000,000, making a total of \$10,300,000.

Daniel Willard, president of the Baltimore & Ohio, said that in the calendar year 1916 the gross earnings of the Baltimore & Ohio were the largest in its history, over \$160,000,000. The operating results, however, left only sufficient net to pay 5 per cent on the common stock with a surplus of \$2,500,000. If the same amount of materials are used in 1917 as in 1916 the increased cost will be about \$5,500,000; coal will cost about \$2,500,000 more; the Adamson law will increase wages by about \$2,000,000; other wage increases about \$1,000,000, making a total of \$11,000,000. The carriers, he said, have just gone through one of the hardest winters ever experienced, from which they had come out worse than when they went in. Power and equipment have been used very hard and the roads have not been buying as much new equipment as they ought to and this is all reflected in the lowered standard of equipment and property at the present time. Under ordinary conditions they could expect a let-up in business and gradually recoup during the summer, but cannot expect to raise the standard of the property and at the same time reduce expenditures. He had made a study to ascertain what the Baltimore & Ohio ought to do in the light of last year's experiences to be in shape to handle a larger volume of business in another winter, which shows that it would have to spend approximately \$50,000,000. The so-called 5 per cent advance of 1914 had resulted in an increase of considerably less than that amount, because it had affected but about 60 per cent of the freight tonnage.

"The reasons justifying an increase at this time," Mr. Willard said, "are wholly aside from any impending crisis. It would be just as important that an increase should be granted if there were no emergency whatever, in order that the roads may put themselves in shape to handle the constantly growing commerce of the country."

F. D. Underwood, president of the Erie, said that his road had no dividends to preserve, but was asking aid to enable it to resume its functions as a transportation agency and to get its facilities somewhere near the condition in which they should be. The Erie had a surplus last year of \$4,500,000, which will be entirely absorbed by the increase in coal prices alone. In January its income was \$1,274,000 less than in January, 1916, and the net income was \$245,000, while the fixed charges are in excess of a million dollars a month. To make the railroad an efficient agent of transportation it will require in the near future \$150,000,000, which it is proposed to raise by the sale of bonds, but it cannot sell bonds until it can make a showing far superior to any it has made in the last twelve months.

Frank Trumbull, chairman of the Chesapeake & Ohio, said that the railroad facilities of the country cannot be expanded without improved credit. The railroads last year, in the most prosperous year in their history, earned only about 6 per cent. In contrast with this, he read a table showing the earnings on the capital stock of a number of large industrial corporations during the past year, including the following: American Locomotive Company, 36 per cent; Bethlehem Steel Company, 71 per cent; Crucible Steel Company, 44 per cent; Packard Motor Company, 48 per cent; National Biscuit Company, 972 per cent; Sears-Roebuck & Company, 26 per cent; Ford Motor Company, 3,000 per cent; Central Leather Company, 33 per cent; United States Steel Company, 48 per cent; United States Rubber Company, 15 per cent. Mr. Trumbull emphasized the need of quick action, saying he was impressed with the fact that the big things of this world are not done with red tape and that "when they wanted to turn over Russia the other day they did not

call in 30 or 40 lawyers and ask whether they could do it or not."

J. H. Hustis, receiver of the Boston & Maine, said its anticipated increase in expenses during 1917 would be about 15 per cent or more than 25 per cent of the freight revenue.

J. J. Bernet, president and general manager of the New York, Chicago & St. Louis, said that the railroads have to hire men in competition with other industries making such large profits as those Mr. Trumbull had mentioned and that the Nickle Plate would have to pay \$798,000 more in wages during this year. The increase in coal would amount to \$534,000 and the total increase for wages, coal and supplies, it is estimated, will amount to \$1,538,000, whereas its net earnings last year were only \$1,655,000.

Chairman Hall asked whether the railroads had decided what they would ask in the way of relief. Mr. Patterson said the percentage had not been definitely decided, but that 5 per cent would not be of any practical use as applied to the present situation. He announced that the roads hoped to be able to do away with the necessity of filing new tariffs immediately and that a petition would be filed within 24 hours.

Other railway executives who attended the conference included E. E. Loomis, president of the Lehigh Valley; Ralph Peters, president of the Long Island; A. T. Dice, president of the Philadelphia & Reading; W. G. Besler, president of the Central of New Jersey, and L. E. Johnson, chairman of the Norfolk & Western.

Earlier in the day the executives of the seven principal carriers of bituminous coal had appeared at a hearing before the suspension board of the Interstate Commerce Commission and Commissioner Clements on proposed advances in coal rates to the Atlantic seaboard and the lake ports, and Mr. Rea, acting as spokesman, had urged that the usual suspension orders be omitted, indicating that the request was preliminary to the general movement for higher rates to enable the roads to meet their increased burdens. The coal tariffs, which had been filed to become effective on April 1, provide for increases of 10 cents per ton to Hampton Roads and Newport News, 5 cents per ton to Baltimore, Philadelphia and New York and 15 cents per ton to the lake ports.

The petition on behalf of the eastern roads was filed on Friday afternoon by George Stuart Patterson, general solicitor of the Pennsylvania; Clyde Brown, general solicitor of the New York Central; George F. Brownell, vice president and general solicitor of the Erie, and Hugh L. Bond, Jr., general counsel of the Baltimore & Ohio, acting as counsel for the Eastern Presidents' Conference. After reciting the general reasons necessitating an increase in revenues to strengthen the position of the railroads, the petition stated:

"If advances in freight rates be proposed and filed with the commission in compliance with its present rules governing the publication of tariffs, a delay of from four to six months must necessarily ensue before such tariff publication can be prepared and made effective.

"Your petitioners are advised that by virtue of the powers conferred upon the commission by the sixth section of the act to regulate commerce 'that the commission may, in its discretion and for good cause shown, allow changes upon less than the notice herein specified, or modify the requirements of this section in respect to publishing, posting, and filing of tariffs, either in particular instances or by a general order applicable to special or peculiar circumstances or conditions,' it is within the power of the commission to so amend its rules as to permit the publication of flat percentage advances to existing tariffs and that such supplementary tariffs could, with the consent of the commission, be published and made effective in less than 30 days, thus affording the immediate relief which the emergency demands.

"Your petitioners recognize that such publication would necessarily affect to a slight extent existing differentials as

between rate groups, and it would be their purpose if permitted to make such tariff effective to amend them as soon as possible by tariff publications, naming specific rates in compliance with the usual rules and preserving existing differentials as they were preserved under the order of the commission in the five per cent case.

"Wherefore, your petitioners respectfully request that this commission in pursuance of the powers vested in it by the aforesaid section of the act to regulate commerce so amend its rules of tariff publication as to permit the carriers in Official Classification territory by brief supplements to existing tariffs to make a percentage advance in all class and commodity rates, excepting bituminous coal, coke, and ore, which can be dealt with in accordance with the present rules, and as to certain of which proceedings for advances are now pending before the commission, and that such advances be permitted to become effective without suspension, and if possible, upon less than 30 days' notice."

#### WESTERN AND SOUTHERN LINES ALSO ASK RELIEF

On March 23 the executives of 23 western lines telegraphed the commission stating that the obligations imposed by the Adamson law and other increases in expenses have resulted in a financial condition requiring immediate relief and requesting the commission for a conference to consider such emergency action as may be necessary. The commission replied at once that it would accord them a hearing on Tuesday afternoon, and a delegation of executive and traffic officers of western, southern and southwestern lines appeared before the commission on that date and made statements similar to those made by the eastern executives.

Hale Holden, president of the Chicago, Burlington & Quincy, appeared as spokesman for the western roads; B. F. Bush, receiver of the Missouri Pacific, for the southwestern roads, and Fairfax Harrison, president of the Southern, for the southern lines.

Mr. Holden argued that the commission should grant authority for horizontal increases in all freight rates in such amount as might be found sane and just, and he pleaded for the necessity of urgent and speedy relief in order to enable the railroads to meet their unusual financial burdens and to put them in a position where they could provide for new capital imperatively necessary for the national demands for transportation. "The national outlook is clouded with conditions of the most serious character," said Mr. Holden, "of sufficient severity to indicate that the transportation machine of the country must be brought to and maintained at the highest possible standard of efficiency and with the least possible delay. The experiences of the past year have unfortunately shown that without the additional burdens placed upon them, the railroads have had, and now have, more demands upon them for service than they are adequately capable of performing.

"There is great need for more power and equipment and for more trackage and larger terminals. To produce these in the face of these enormous increases in expenses requires, we believe, a substantial increase in revenues through an increase in rates, whereby additional money will be available to pay increased operating and maintenance expenses and interest upon the new capital which will be required to finance the improvement and additions to the plant that are necessary.

"The inability of the roads to increase their prices without public authority has compelled them to look for further economies and increase the volume of business, but it is apparent that relief from these sources cannot longer be expected nor looked for to provide the means necessary to meet the extraordinary charges which the railroads have had imposed upon them."

Mr. Holden said that it was not possible to give any detailed estimates of the increased financial burdens for the

year for all the western roads, but he cited typical instances of very much higher prices now being paid for coal, locomotives, cars, boilers, rails and other supplies and equipment, in addition to unprecedented wage increases.

Benjamin F. Bush, receiver for the Missouri Pacific, said he represented a class of roads nearly all of which have been in the hands of receivers and a large number of which are now being operated by receivers. He endorsed Mr. Holden's statements regarding the increases in expenses and read figures showing the percentages of increases in expenses which a number of lines in his territory estimate they will have to meet this year as compared with last year, as follows: St. Louis-San Francisco, 20 per cent; St. Louis Southwestern, 21.4 per cent; Missouri, Kansas & Texas, 21 per cent; Chicago, Rock Island & Pacific, 18.9 per cent. There is little prospect, he said, of a decrease in coal prices, because more coal is being consumed in the country and there is a great shortage of labor in the coal fields. Moreover, he said, wages cannot be reduced without a very severe conflict.

Fairfax Harrison, president of the Southern Railway, spoke on behalf of the southern roads. "The South is prosperous," he said, "and the railways have been doing very well. The Southern Railway last year earned about 15 per cent over the previous year, and we have nothing to complain of for last year, but we are faced with such great increases in costs this year that there won't be much left in the bottom of the till. We are not here to talk about being ruined or to talk about facing disaster, but under such conditions we cannot continue to grow and keep pace with the development of our territory."

Mr. Harrison said that the same quantity of coal used last year under the new contract for this year will cost the Southern \$2,100,000 more. Materials will cost \$4,800,000 more, the Adamson law will add \$1,000,000 to wages, and other increases in wages will amount to \$400,000, making a total of \$8,300,000 increased expenses in sight for this year, which is equal to 14 per cent of the freight rate revenue for the past year.

"Our primary problem," said Mr. Harrison, "is one of greater credit which will enable us to get the capital necessary to place this road in a condition to serve the best interests of the country. This year we were unable to sell new bonds on terms we were justified in accepting. We have not paid any dividends, and what we have earned has gone back into the property. My responsibility to the community we serve urges the necessity for an improvement in our income in order that we may improve our credit."

Jacob M. Dickinson, receiver of the Rock Island, and L. E. Johnson, president of the Norfolk & Western, followed Mr. Harrison.

Commissioner Clements expressed some concern as to the propriety of applying a horizontal advance to the rates involved in outstanding orders of the commission which have recently been fixed. Mr. Holden and Mr. Patterson thought that the changed conditions would justify these rates being considered on the same basis as others, but said that any special conditions could be taken into account. Commissioner Clements also asked whether the advances could be withdrawn if, after a year or so, it should be found that the conditions apprehended fail to result as badly as anticipated. Mr. Holden said the conditions are not apprehended; they are here; but suggested that there would be no objection to an order being made subject to revocation or modification. Commissioner Meyer asked whether the roads had thought of having a time limit. Mr. Holden replied to this that the roads had not discussed it, but that it would be idle to expect that the present conditions would be only short-lived. He said he did not expect Congress to repeal the Adamson law, and he had no hope that wages would be reduced while the high prices for materials and fuel are due to conditions that will prevail for a long time.

Both Mr. Holden and Mr. Patterson made it plain that by asking the commission to pass on the application without suspension the roads have no idea that the commission will not hold hearings, and suggested that the effective date could easily be postponed if necessary either by the commission or by voluntary action of the carriers, but they hoped the commission would recognize the existence of an emergency.

## CARDINAL GIBBONS LAUDS EFFICIENCY OF AMERICAN RAILWAYS

In an interview published in a recent issue of *The Outlook* Cardinal Gibbons praises the efficiency of the American transportation system and expresses his disapproval of the hostile attitude of the public toward it. He is particularly outspoken in his opposition to government ownership of railways.

"I find the efficiency of the American railways," he said, "much ahead of the European transportation systems. The government-owned railways abroad cannot be compared with the privately owned lines in this country either in service or the charges for such service. On the Italian roads, for instance, there is a deficit in revenues each year which must be made up by the state, while in America the same is true of our great post-office system. I regret very much the tendency which is so apparent in certain quarters of constantly nagging the railways. The idea seems to be prevalent as a result of general misunderstanding that the railway properties in America are being conducted for the personal benefit of their officers, and that these men alone are interested in their successful operation."

"The development of the nation as a whole is largely dependent upon the successful condition of the railways and upon their ability to provide for present needs and for future growth. It seems to me a great mistake to interfere with plans necessary to such growth. Any such interference not only places a hardship upon the American people, but also upon those who have investments in the railways. Thousands of citizens, most of our financial institutions, savings banks, life insurance companies, and charitable organizations have extensive investments in our railways. I am an investor in the Baltimore & Ohio and other railway securities and am vitally interested in their success. In this country we can travel for less than we can travel in Europe, and here our railway service is of the highest order. It is a marvel of safety when we consider the hundreds of millions of passengers carried every day."

"I think it would be a mistake to consider public ownership of American railways, as such a plan would be contrary to the spirit of our people. If the hundreds of thousands of railway employees were to be made government employees and the immense funds of the railways were to be handled by government agencies, we would build up a central power that would use the employees for political purposes and would bring about corruption of the worst character. It is much better that we have the stimulus of private ownership, with the owners striving through competition for better conditions. Under the existing system mismanagement can be remedied. An awakened public conscience gives assurance of this."

"The tendency of great combinations of labor to interfere with railway operations is ill-advised. Such organizations misuse their power, and there is danger that they will overreach themselves to their own detriment as well as the detriment of the country. They should be warned against using legislation to further these mistaken ends, as there is danger of a reaction which would offset the good which these organizations can accomplish if wisely guided. Class legislation is dangerous in this country, and I sincerely hope that organizations working on such programs will be restrained. I have always been friendly to the laboring man as well as

to his organizations, but I oppose them when they overreach themselves."

The Cardinal was especially interested in the recent action of the Union Pacific in providing its employees with life and disability insurance without cost.

"The plan vastly improves the relations under which employers and employees deal with one another," he said. "In too many instances there is an attitude of mutual hostility. The proposed system will abolish this. It will stimulate the activities of the workmen and encourage them to put forth better efforts in the interest of themselves and their company. It will also remove dread of the future on the part of the workers in that it provides for 'rainy days'; and, further, it will establish security and tranquillity. The system is the practical putting into effect of the principles of Christian charity. It establishes the most friendly relations in the minds of all and brings about harmony and sympathy. It extends to the social body that sympathy and co-operation which are to be found in the human body, wherein if one member sustains an injury it receives the sympathy and support of all the other members. This may be illustrated by the example of a thorn in the foot. When the foot becomes swollen and sore, it brings into play the immediate sympathy of every other part of the body, and the system starts at once to relieve the soreness and re-establish harmony. The employees' insurance plan is the very essence of benevolence and harmony."

## FOUNDATION GEAR FOR PASSENGER CARS\*

By Walter V. Turner

Assistant Manager, Westinghouse Air Brake Company

The foundation brake rigging has an important bearing on the matter of train control. The advantages of improved types of air-controlling devices can be realized only in minor degree unless improvements be made in the foundation brake gear, which today is the weakest link in efficiency in the whole air brake system. The first and essential requisite of foundation brake rigging is that it be designed with due regard to the strength, rigidity, and arrangement which will always maintain the proper volume proportions between

from one pair of wheels to another, due to irregularities in the track surface, and causing wheel sliding. Suitable truck design cannot be dissociated from these requirements for adequate brake rigging.

The single-shoe-per-wheel type of foundation rigging in such prevalent use meets none of these requirements. The lack of proper volume proportion maintained by this single-shoe type of rigging is illustrated in Figs. 1 and 2. In Fig. 1 the positions of rods, levers, truck frame, and shoes, shown in full lines, are those for the cylinder pressure (about five lb.) necessary to just bring the brake shoes against the wheels. The dotted lines show corresponding positions when the cylinder pressure has been built up to some value appreciably higher, such as that for a full service application. The difference in piston travel which this variation in cylinder pressure makes is represented by the distance  $RS$  on the center line of the cylinder. *This is false piston travel.* The pulling down of the truck frame and other parts from the full line to the dotted line positions is caused by the brake shoes being hung at a point on the wheel considerably below the horizontal center line and by being hung from the truck frame, which is separated from the journal boxes and the wheels by the usual truck springs. This results in the false piston travel  $RS$ . The operation of the automatic slack adjuster returns point  $S$  and, of course, point  $R$  towards point  $T$  until distance  $TS$  equals the setting of the slack adjuster. This reduces distance  $RT$  and, therefore, the brake shoe clearance for release position until in many cases  $RT$  actually becomes zero. Point  $T$  represents the release position of the piston and point  $R$  that piston position where the shoes first come against the wheels. That is, there is very much reduced shoe clearance, or none whatever, with the single-shoe type of brake rigging. And dragging shoes mean highly increased train resistances, with the corresponding reduction in motive power capacity, increase in fuel and water (or electric power) consumption, and shocks due to the necessity for "taking the slack" in order to get a train under way.

The point very difficult for many to grasp, when this action of the automatic slack adjuster is explained (and they immediately suggest dispensing with the adjuster altogether) is that without the adjuster point  $S$  might go out so far that the brake piston would strike the non-pressure cylinder head.

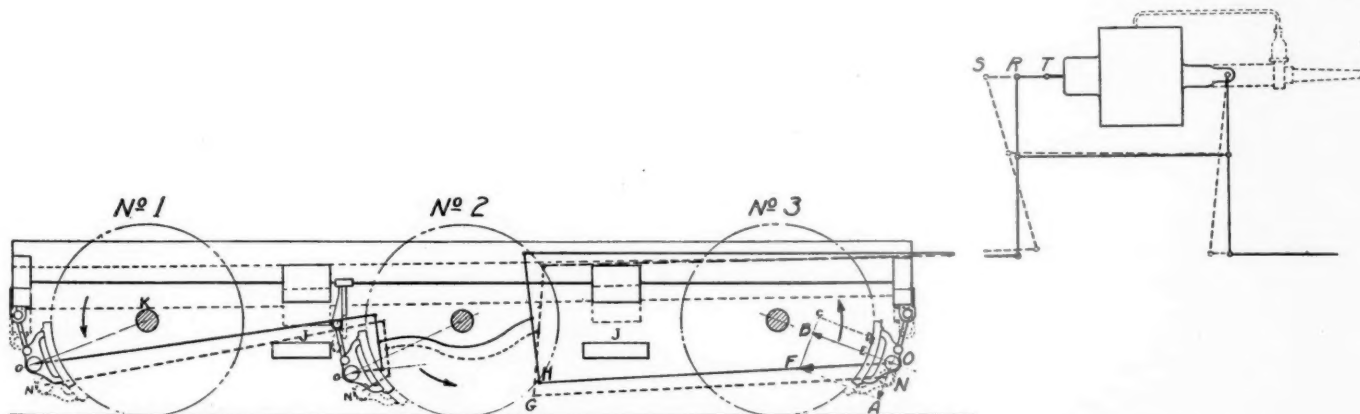


Fig. 1—Relative Positions of Brake Rigging with Light and with Full Service Applications.

the brake cylinder and auxiliary reservoir; that is to say, it must provide a piston travel constant as nearly as possible under all variations in cylinder pressure. Also, it should not apply to the wheels unbalanced lateral pressures so great as to force the journal out from under its bearing, causing journal troubles, and to cause excessive binding between journal boxes and pedestal jaws, thereby permitting a shifting of weight

And this it would do unless careful and repeated manual adjustments were made—adjustments almost impossible to accomplish in the comparatively minor degree required under present conditions. Moreover, such adjustments would merely duplicate in a laborious way the work of the present slack adjuster, and this remedy would provide no betterment whatever. The only "fault" the automatic slack adjuster has is that of revealing the evil of false piston travel and the necessity for striking at the fundamental cause in order to effect a cure. Also, in this same connection, it is well to mention that the

\* Taken from a paper on 'Vital Relation of Train Control to the Value of Steam and Electric Railway Properties,' presented before The Franklin Institute.

slack adjuster should take up about one thirty-second of an inch only for each operation instead of the full distance the piston travels beyond the adjuster setting. Otherwise, where the full overtravel is taken up with one adjuster operation, an unusually high cylinder pressure, such as obtained in emergency, would cause the shoes to grip the wheels with the air exhausted from the cylinder, to such an extent that the car could not be moved at all.

The distance *RT* represents the piston travel for light brake pipe reductions, and, as before pointed out, short piston travel means correspondingly high cylinder pressures and, therefore, severe shocks in long trains, due to serial brake action. What this false piston travel means in the way of giving high cylinder pressures for a light brake pipe reduction at just the time when they are not wanted is shown in Fig. 2. When high pressures are desired heavier brake pipe reductions can readily be made, but if flexibility is to be had it is indispensable that the brake installation permit obtaining light cylinder pressures as well as heavy ones.

Piston travel, where the type of rigging permits it to vary, is a function of the time or duration of brake application, as well as of the cylinder pressure. For a condition of 4 in. false piston travel, as shown in Fig. 2, dotted curve *A* in the

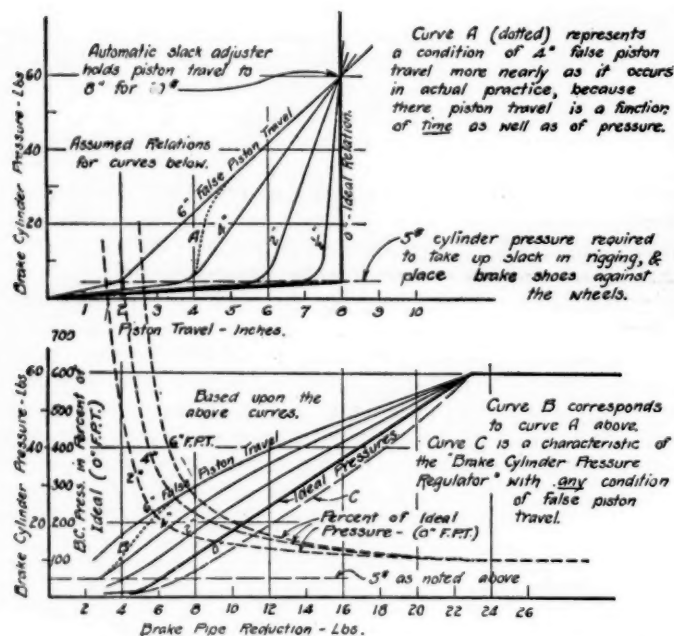


Fig. 2—Effect of False Piston Travel on Brake Cylinder Pressure

upper figure represents more nearly what the variation in travel with cylinder pressure would be for an actual brake application, for the piston travel will not lengthen out immediately. It takes a certain period of time for the jolting of the cars and trucks to assist the brake shoes to pull down on the wheel treads, as illustrated in Fig. 1 and thereby lengthen the piston travel. This is significant, because the shocks occur in the early stages of a brake application. Curve *B* in the lower figure shows what the condition portrayed by curve *A* means in the way of high cylinder pressures for light brake pipe reductions. At the point (6 lb. brake pipe reduction) where the brake with the ideal condition of no false piston travel whatever is just starting to become effective, the single-shoe brake rigging with 4 in. false piston travel has about 21 lb. cylinder pressure, as shown by curve *B*. Is there any wonder that shocks occur in the long passenger trains of to-day? It is necessary to make at least a 6 or 7-lb. brake pipe reduction in order to insure that all triple valves apply and that sufficient differential may be set

up to release them when desired. In the attempt to put the brakes on lightly and avoid shocks, insufficient reductions are made, with the inevitable result of stuck brakes.

All these things may be summed up in the following:

In modern heavy passenger train service, the single-shoe type of foundation brake gear with inherent false piston travel is responsible for:

1. Rough handling of trains in:
  - (a) Starting—violent "taking of slack" necessary to get train under way.
  - (b) Slowing down.
  - (c) Stopping.
2. Inability to "make the time" because of:
  - (a) Hard pulling train—due to dragging brake shoes and stuck brakes.
  - (b) Long-drawn-out stops—"dribbling on" brakes in attempt to avoid shocks.
  - (c) Delays due to hot journals, stuck brakes, flat wheels, and damage arising from shocks.
3. Unwarranted expense in:
  - (a) Excessive fuel and water consumption.
  - (b) Reduced capacity of locomotive.
  - (c) Slid flat wheels due to shocks, stuck brakes, and shifting of weight from one pair of wheels to another.
  - (d) Damage arising from shocks, even to the extent of break-in-twins.
  - (e) Hot journals.
  - (f) Burned brake shoes and brake heads.

Obviously, the way to cure these troubles is not to dally with the effects, but to strike back to the underlying causes by applying a suitably designed foundation brake gear of the two-shoe-per-wheel or "clasp" type. For two reasons the foregoing list of troubles, occurring in passenger service, do not appear in freight service: First, the braking ratio is limited to 80 per cent; and second, the type of truck generally used does not permit relative movement between the truck frame and wheel.

In summing up, it may be said that a well-designed clasp-brake rigging eliminates the single-shoe brake evils above scheduled as no other device can possibly do. A more direct comparison may be drawn up between the single shoe and clasp types of brake gear by saying that with the clasp brake it is possible to have:

1. Shorter stops in emergency, due to reduced brake shoe duty.
2. Reduced brake shoe wear.
3. Reduced brake shoe maintenance.
4. No brake shoe dragging—reduced train resistances.
5. Longer trains handled with less loss of time, using same motive power equipment.
6. Fewer delays.
7. Smoother stops.
8. More accurate stops.
9. Fewer slid flat wheels, due to shocks, stuck brakes, and the transfer of load from one pair of wheels to another.
10. Fewer stuck brakes.
11. Fewer hot journal bearings.

#### BRAKE CYLINDER PRESSURE REGULATOR

In order to have some measure of relief from the evils attendant upon the use of the single-shoe brake, pending the accumulation of the funds required to meet the sometimes very great expense of remodeling trucks to provide for a suitable clasp brake rigging, a device has been designed which makes the auxiliary reservoir volume a function of the piston travel. The brake application starts with an auxiliary of very much reduced size, which keeps down the brake cylinder pressures for light brake pipe reductions. The continued outward movement of the brake piston cuts in, at predetermined points, additional auxiliary volumes, finally giving full service pressure when the proper brake pipe reduction has been made. By so proportioning the parts it has been actually possible to get a characteristic curve of operation like that of curve *C* in Fig. 2. This provides, as is readily seen, even greater flexibility of brake operation than the clasp brake, but, of course, all the troubles and losses due to dragging brake shoes remain. This new device also arranges for the use of the first small auxiliary reservoir for all reapplications of the brake after a partial release, thereby cutting down the build-up in pressure on that retained in the cylinder and making smooth handling of long trains at low speeds much more certain.

# Hearing on Tentative Railway Valuations

## Arguments Presented as to Whether Commission Should Find Final Value. Testimony on General Principles

**A**RGUMENTS as to whether the Interstate Commerce Commission under the valuation act is required to find the value of the railroads or merely to report certain factors of value, were presented before the full commission on Monday during the hearing on the protest of the railroads as to the five tentative valuations already issued. The commission set aside the morning session for arguments on this question and George Stuart Patterson, general solicitor of the Pennsylvania, and Samuel Untermeyer, representing the Kansas City Southern, contended that the commission is required to find a definite, specific value of the property, accompanied by such detail as provided in the act as to show the various elements and sources of value. P. J. Farrell, solicitor for the division of valuation, C. F. Newman, its valuation attorney, and Clyde B. Aitchison, solicitor for the valuation committee of the National Association of Railway Commissioners, argued that the act provides for the ascertainment not of a specific value, but of the various elements of value specified in the act, such as cost of reproduction new, cost of reproduction less depreciation, original cost to date and other values or elements of value, if any.

Mr. Patterson said that the language of the valuation act is so plain that there is hardly occasion for resorting to other means of ascertaining its intent, but if there is any doubt about the language, evidence as to the purpose may be found in the reports of the commission for 25 years. It had urged the necessity of ascertaining the value of the roads for the purposes of taxation, for the purpose of determining reasonable rates, to show whether the railroads are over-capitalized, for the purpose of introducing into the carriers' accounts a depreciation reserve, and for determining the accuracy of the statement of the assets of the carriers in their balance sheets. The tentative reports of the division of valuation, he said, could not be used for any of these purposes except that of establishing a depreciation reserve. The proceedings in Congress prior to the adoption of the act also show that it was not intended to confine the valuation to the physical property, because the Senate struck out the word "physical" as used by the House in the original bill. The act itself, he said, in all its language, made it clear that the purpose was to find the valuation of the roads, which means simply to make a final estimate of what they are worth and that the classification of value shall be made "as hereinafter provided." The provisions of the act providing for the classification require the commission to ascertain the evidence on which the final value must rest. It has been stated, he said, that of 8,000 rate cases before the commission there have been only 10 in which the question of valuation was of importance and he considered it inconceivable that the people of the United States should want to spend \$50,000,000 or \$60,000,000 for a valuation to be used only in a few rate cases. Mr. Patterson said that the tentative valuations already served by the commission had been in such form as to mislead the public and have a bad effect on railroad credit generally.

Mr. Farrell contended that the words "as hereinafter provided" were intended to modify the direction to ascertain the value and that the act required the commission not to report one value, but three kinds of valuation, together with certain other information. He contended that the act uses the word "value" in the sense of "cost," and the commission is expected to report the original cost, the cost of reproduction new and the cost of reproduction less depreciation. Nowhere in the act is the word "aggregate" used. If the commission did find the total value, he said, it could not be used for rate-making

purposes because it would include elements which in themselves depend upon the level of the rates and a valuation for rate-making purposes should represent, generally speaking, the physical assets of the company. While the earning power of the road, its good will, etc., might properly be included in a valuation for the purpose of finding the exchange value, they were not to be considered as a part of the property devoted to the public use.

Mr. Aitchison argued that there is nothing in the act which requires the finding of an ultimate specific sum as the value of a railroad, that for the purposes of government purchase or taxation, or for comparison with the capitalization, no single figure would be of any service. Congress had taken into consideration the fact that there may be a difference in the standards of valuation for different purposes, and therefore had not required the commission to find one specific value, but to find certain elements of value for whatever use should be made of them for particular purposes. He read statements by Senator La Follette during the debate in Congress to show that was his view of the matter. Mr. Aitchison said the only purpose of finding a definite value would be to satisfy curiosity or to sustain the credit of the carriers, but that even if it were found it would not have a good effect on their credit.

Mr. Untermeyer said he could find no ambiguity whatever in the terms of the act, that it required the finding of a final value and also the constituent elements of that value. He said there was no such thing as a value for one purpose and another value for another purpose, that value is a fact, and that it would be necessary to read the purpose out of the act to get a construction that the commission shall not fix a definite value.

Most of the testimony presented was for the purpose of illustrating the general principles to be observed and to illustrate why, in the opinion of the carriers, allowances should be made for such items as appreciation, contingencies, cost of purchase and condemnation of land, etc., and as to what items should be included under the head of "other values and elements of value." The commissioners several times expressed impatience because the railroads were not presenting specific figures to supplement or correct those in the tentative valuations, but Pierce Butler and W. G. Brantley, representing the western and southern carriers, respectively, and S. W. Moore, general solicitor of the Kansas City Southern, said that they could not well introduce such testimony until after the commission had settled some of the general principles. The testimony during the first of the hearing was reported in last week's issue.

### CONTINGENCIES

J. E. Willoughby, chief engineer of the Atlantic Coast Line, continued his testimony, the first part of which was mentioned in last week's issue, regarding the appreciation in the value of the roadbed due to seasoning and solidification. He also said his experience in charge of the construction of about 1,000 miles of new railroad had convinced him that 5 per cent of the road accounts is a fair average allowance for engineering expenses. Solicitor Farrell told the commission that seasoning, solidification and adaptation represent nothing more nor less than the expenses occasioned by depreciation in a new line. Mr. Willoughby said he had usually used 5 per cent in estimating the cost and that while the actual cost of engineering was sometimes less and sometimes more, that had been shown to be a fair approximation.

D. J. Brumley, valuation engineer of the Illinois Central, also testified regarding appreciation to show that a seasoned road is more valuable than a new line.

Hollis Rinehart, a contractor, described examples from his experience in which contingencies had been encountered, which had sometimes increased the cost of the work as much as 50 per cent. He said that 10 per cent was a fair average allowance for contingencies. Wesley Lane, a contractor, also gave examples of contingencies, which in some cases had doubled the cost of the work and which in many cases, he said, would not be noticed in a valuation of the property years afterward if the original records were not preserved. He said he had never taken a contract without an allowance for contingencies. In one case he described the cost of a tunnel which had been increased from \$500,000 to \$1,000,000. The work was apparently through solid rock, but a flow of mud was encountered which came through a fissure from the top of the mountain while the work was in progress. In another example a railroad desired to elevate a street five feet and the mayor and city council took advantage of the opportunity to require it to pave a number of streets and to change the location of a freight depot, adding \$200,000 to \$300,000 to the cost of the work. He also mentioned cases where failure to obtain title to right of way had caused delay and increased the expense of the work, and a number of cases in which slides had added to the cost. He said he had never taken a contract without an allowance for contingencies.

C. S. Churchill, assistant to the president of the Norfolk & Western, testified on the subject of contingencies. He said the engineering committee representing the carriers had gathered a large amount of data as to the cost of contingencies in various parts of the country and that the committee hoped to be able to ascertain a proper percentage of allowance for various accounts. He described a number of instances to show that the amount of work cannot be measured in later years where records have not been preserved and declared that in similar districts it is reasonable to expect that all roads would encounter approximately the same character of contingencies. Commissioner McChord objected to the idea of going 1,000 miles away from the railroad under valuation and getting the experience of other roads, saying that data should be furnished for the roads in question. When Judge Brantley stated on some of the roads in question there were no records covering this point, the commissioner said that was the misfortune of the railroads.

Director Prouty said the division had recognized the existence of contingencies and had attempted to allow for it. He said the carriers had pointed out that there are elements of cost of this character which are not reflected in the contract price per yard and that he thought the point well taken and had asked the roads to furnish information on that point, but he thought the evidence should be on the roads valued and not from other roads. He said an allowance for contingencies had been included under the head of excess cost of grading in the tentative valuations, although it was not separately stated and that it would not run far from 5 per cent. Pierce Butler, counsel for the western group of roads, said the general experience of railroads would be better evidence in ascertaining cost of reproduction of a railroad than the actual facts as to a particular railroad many years ago, which could not now be ascertained. Commissioner McChord said that the commissioner had served only tentative reports and that if anything had been left out the case is open for the railroads to put in evidence.

Mr. Churchill said that if any allowance had been made in the Atlanta, Birmingham & Atlantic report for contingencies, it is so insignificant that it could not be located. He had secured data from other roads in the same territory and had found that approximately 15 per cent of the road accounts should be allowed for contingencies. He thought that figure would be fair for the Atlanta, Birmingham & Atlantic.

Mr. Churchill said there had been an apparent tendency on the part of the government engineers not to include anything that could possibly be questioned and that they were much less liberal than railroad engineers were in dealing with contractors. Mr. Helm made a formal objection to any testimony regarding contingencies based on the experience of roads other than the ones being valued.

E. Holbrook, special engineer of the Union Pacific, testified that under ordinary circumstances engineers usually allow about 10 per cent for contingencies. Director Prouty asked if it was his opinion that 10 per cent should be added to the cost of reproduction as reported in the tentative valuations. Mr. Holbrook replied that the matter would have to be determined by a study of the situation. He would not attempt to say what the specific allowance should be without such a study, but there should be a very substantial allowance added. If such allowances are made in actual construction they should be made in reproduction. Mr. Prouty said the division had attempted to report the actual experience, in which case there would be no need for an allowance for contingencies. Mr. Holbrook said that would be so if the work were done accurately, but it would be impossible to obtain the correct results by the methods followed. He said the construction period taken never produced the railroad that is now being dealt with.

Director Prouty said that the division is not going to rely on the opinion of any engineer, no matter how distinguished, if it can get the actual facts, and that by ascertaining afterward what actually happened it was not necessary to allow for contingencies. Mr. Holbrook insisted that there would be an even greater uncertainty in attempting to ascertain quantities. For example, he said, it would be impossible to find out at this late day exactly how deep a railroad foundation is without an unwarranted expense. The director admitted that it could not be done exactly, but contended that the error would be just as likely to be in favor of the railroad as against it. The witness maintained that the engineers of the commission were not as liable to find something that does not exist as to overlook something that does exist.

#### CONSTRUCTION PERIOD

A. W. Newton, chief engineer of the Chicago, Burlington & Quincy, and chairman of the western group engineering committee, testified regarding the construction period that would be required to produce the Texas Midland, giving the results of a comprehensive study made by the committee. The original report of the division of valuation allowed four months for reconnaissance and organization and 12 months for construction. The committee felt that this period was too short and had prepared a complete construction program with an estimate of the engineering expense for each period. This program included four months for preliminary work, reconnaissance, raising capital, incorporation, etc., eight months for preliminary surveys and location and 18 months for actual construction. Mr. Newton filed as an exhibit an estimate of the distribution of expenses by periods as the basis for calculating the interest. A. L. Conrad, assistant general auditor of the Atchison, Topeka & Santa Fe, also testified regarding interest during construction.

#### DEPRECIATION

Julius Kruttschnitt, chairman of the executive committee of the Southern Pacific, testified on the question of depreciation to show that depreciation should not be deducted from the value of roadway and structures, providing they have been properly maintained. Taking the cost of ties as an example, Mr. Kruttschnitt contended that where track has reached such a condition that tie renewals are uniform in quantity and quality from year to year, the service condition would be 100 per cent instead of 50 per cent, as required by a circular issued by the division of valuation. Director Prouty

said that it was the contention of the division that property depreciates down to a certain point and that when it reaches that point, by proper maintenance, depreciation may be arrested.

The railroads contend, Mr. Kruttschnitt said, that whatever is put into the track is carefully watched and any maintenance that is accrued is not deferred, but is at once taken care of and that it follows almost axiomatically that there could not be depreciation. If maintenance is deferred long enough, he said, it will amount to a great deal, but if it is offset by renewals as soon as the necessity therefor appears, the total of life years of service in the property cannot change. The fact that there is no definite standard of maintenance for all roads does not change the situation, he said, because no engineer ever had any difficulty in determining to his own satisfaction when the maintenance of his property was up to the proper standard, that is, when it completely offset deferred maintenance. The same standard, 100 per cent, should be used for all roads and the principles to be followed are general. In the case of ties, the method is (1) to determine the number of ties in the track, (2) to determine, preferably just after the annual renewals have been completed, how many remain that should be renewed, (3) to determine the average life of ties from the records of the carrier to be valued. Therefore, estimating 1,000,000 ties and an average life of 10 years, depreciation will be fully offset and arrested if the annual renewals are substantially 100,000. If on inspection the number of ties to be removed is negligible, it appears that all necessary renewals have been made, depreciation has been fully arrested and the condition of the ties is standard, or 100 per cent. If a count shows that 50,000 should be removed after the annual renewals have been made the unarrested depreciation is 5 per cent. If an annual inspection of the track is made and the books show that the expenditures have been uniform and constant, it follows absolutely that no maintenance has been deferred and it is in 100 per cent condition.

The Southern Pacific has tie records back for 18 to 25 years. They do not show that renewals have been absolutely constant, but they do show that in the average life of the ties they have all been renewed. The Southern Pacific had a practice for taking care of equipment reserve by making a credit for depreciation, reserving the value of a car when it was wrecked or destroyed and reducing the capital account by the same amount. When new cars were needed the reserve was applied to the purchase of new cars and an amount was added to the capital account that had been subtracted, and the same amount was subtracted from the depreciation reserve and the accounts balanced. The loss of capital by the vanishing of cars was made good by the addition of capital by the purchase of new cars. Under that system the integrity of the equipment of the Southern Pacific was maintained perfectly until the commission ordered otherwise.

The same principles that apply to ties, he said, apply to buildings. If the annual inspection shows that there are no buildings that require immediate renewal, the entire system of buildings should be declared properly maintained and in 100 per cent condition, except that in case of a large building, such as a terminal, a detailed analysis might be justified.

Director Prouty on cross-examination cited an example of 200 ties in track, assuming 10 years as the average life, no ties having required removal at the end of the year. He insisted that 20 service years have been lost and that there are only 180 service years left. Mr. Kruttschnitt said that one year cannot be taken by itself, but that at the end of the life cycle of the ties as many service years would have been replaced by renewal as were taken away by service. He said the Southern Pacific is following the commission's rules as to the depreciation of equipment, but as the commission had left it optional whether carriers should charge depreciation on ties, it had never made a charge against ties, because,

after having charged the public for their renewal in operating expense, if a depreciation charge had been made in addition, the public would have been charged twice. "On maintenance of way matters," he said, "if we are allowed to earn enough to make renewals and repairs out of operating expenses as they accrue, we cannot ask any more for depreciation."

Director Prouty said he thought that under the valuation act the commission is required to do as it is doing in showing depreciation, but he also believed that in future depreciation can only be handled in the way Mr. Kruttschnitt had indicated as to roadway accounts.

#### DEVELOPMENT OF TRAFFIC

J. F. Holden, vice-president in charge of traffic of the Kansas City Southern, gave a description of the road from the traffic standpoint, showing the progressive development of its tonnage, the development of the territory served, the organization of the traffic department and its work in building up traffic. Mr. Helm said he would object to this testimony if the purpose was to show the good will value of the road. Mr. Moore said the purpose was to prove that the Kansas City Southern possesses a volume of traffic, to show how it has been built up and the prospects of its continuation and increase in the future, as one of the most valuable assets the company possesses and one which should be considered by the commission in passing on the final valuation of the company's property. Commissioner Meyer asked if it was the intention to place a value on the traffic of the road in dollars and cents. Mr. Moore said he hoped to be able to give some evidence of this value, but that he could not prove it specifically by any witness.

At the opening of the hearing on Saturday morning, Chairman Hall made a brief statement, saying that the commission desired something more concrete in the way of definite figures. He said the hearings were being held for the purpose of supplementing or correcting the tentative reports, in which the railroads contend that the figures are wrong, and the commission wants to know what are the right figures, but that after 12 days of hearings no such figures have been produced. He indicated that the commission would prefer to have the remaining time of the hearing devoted to that purpose instead of to general principles. The chairman said the testimony already introduced has been destructive criticism rather than constructive and that the tentative figures of the commission at least have the merit of being stated in dollars and cents.

Judge Brantley replied that the carriers at the previous hearing had submitted to the commission some 20 questions as to general principles as to which the carriers and the division of valuation had agreed that they could undertake to determine the facts if the commission would lay down some definite rules, but that the commission must first settle the question as to whether any allowance is to be made as to various elements of value before definite figures can be produced, and they had been giving evidence intended to enable the commission to determine the questions of principle involved. Director Prouty said he had assumed that the commission would desire to hear evidence as to certain principles involved, such as the question as to whether an allowance should be made for appreciation, contingencies, etc., and that testimony as to the actual figures can be heard before an examiner.

#### ORIGINAL COST OF THE K. C. S.

L. F. Loree, chairman of the Kansas City Southern, testified regarding its value and development, and told the Commission that the road could never have been financed and built under the program used by the division of valuation.

R. J. McCarty, vice-president of the Kansas City Southern and chairman of its valuation committee, described the methods he had used in obtaining the original cost to date for the

road, which he placed at \$50,915,655. He said this figure had been arrived at by one method and had been checked by another. The original cost could not be found accurately in the records of the company, but he had reached the result by making a careful inventory of the physical properties, sparing no time or expense to obtain the most accurate results and had applied the actual unit prices as shown by the company's records. He said his engineering parties making the inventory had worked ahead of the parties of the division of valuation and then the men in charge of the company parties had acted as pilots for the commission parties. The company's figures were then compared with the commission's figures and he cited one case in which the company's forces had measured 40,000 cubic yards of grading in one mile, whereas the commission had reported only 30,000.

In addition to the inventory he had made an independent effort to find the actual amount of money that had been put into the production of the property, which he had traced through the books of the construction companies. He had paid no attention to the amount of securities paid to the construction companies, on the basis of \$25,000 of stock and \$25,000 of bonds per mile, but had used only the actual cash expended by the construction companies, adding a contractor's profit of 15 per cent to that part of the expense to which such a profit should apply, or about \$13,000,000 of the total. He said he made this study of the original cost to date for the purpose of showing that it could be done, although the division of valuation had reported that the original cost could not be found. He had also made an appraisal of all the other elements of value, but the company did not claim the full amount in making its protest. Director Prouty said that an effort was being made to compare the figures of the division of valuation with those made by the company and that further testimony on this point would be taken at Kansas City.

#### REAL ESTATE

Thomas W. Hulme, real estate agent of the Pennsylvania Railroad and vice-chairman of the Presidents' Conference Committee, gave detailed testimony regarding his experience in purchasing and in estimating the expense of real estate to show the necessity of making an allowance for unforeseen expenses and errors in judgment and to show that land purchased for railway right of way invariably costs more than a similar area of adjacent property. He said that if a strip of property is taken from a man's land, he must be paid for the damage to his other property and the railroad has obtained property worth more than a similar area of other land because of its special adaptation to the purpose of the railroad. He had never known any one to buy a small piece of property at a price proportionate to the acreage prices. It has been his duty to prepare estimates for the purchase of approximately \$20,000,000 worth of land a year and after his department had prepared its estimate, approximately 20 per cent was always added for expenses and errors in judgment. In addition to the severance damages, the railroad usually has to pay for crossing rights and when it is known there is a demand for certain property, its price is invariably increased; concentrating a number of parcels of land in a block into one ownership invariably costs 20 to 25 per cent more than the aggregate of the former price of the parcels, etc.

To show what a small proportion of the cost of railway real estate is represented by the naked land value, he cited instances from his own records. In 1915 in 25 transactions the company had paid \$25,084 for property, of which the naked land value represented only \$1,210. In six other cases in the same year it had paid \$39,390 for property, of which the naked land value was \$17,050. In 27 other cases it had paid \$64,825, the naked land value being \$20,775. In a number of other transactions in the same year where the land had been purchased adjacent to buildings, the company paid

\$674,389, where the land was worth \$313,665; buildings represented \$279,929 and the balance, \$81,795, represented damages. In 1916 in 44 cases the company paid \$218,114 where the naked land was worth \$77,000, the payment for rights other than land amounting to \$140,000.

Solicitor Farrell asked if he had ever estimated the cost of reproducing a railway right of way on the hypothesis that the railroad was not in existence. Mr. Hulme said he was once required, in order to find out whether the Baltimore & Ohio was charging the Pennsylvania too much for trackage rights over a certain line, to find what it would cost the Pennsylvania to build a parallel line and then to estimate what it would cost to reproduce the Baltimore & Ohio line. He had assumed no other condition except the non-existence of the Baltimore & Ohio line, taking the value of the adjacent land as he found it and allowing for severance and other damages to the adjacent land and for certain rights. Solicitor Farrell moved that Mr. Hulme's entire testimony be stricken from the records, but the motion was promptly over-ruled.

Joseph Beale, formerly for many years right-of-way agent for the Pennsylvania Railroad, described his experiences in buying the right of way for a certain line, giving details from notes he had taken at the time, to show the many items of cost that enter into the purchase of real estate in addition to the bare acreage value of the land. Director Prouty objected to this character of testimony as inapplicable to any of the roads under valuation. He said the division had made no attempt to report the present cost of condemnation and damages because it knew of no way in which it can be ascertained and under the decision of the Supreme Court in the Minnesota rate case it could not be ascertained. He had hoped to hear testimony as to how it could be done, but saw no object in producing general testimony to show that railroad right of way costs more than other land because there was no dispute as to that fact.

#### PROTEST FILED BY ELGIN, JOLIET & EASTERN

The Elgin, Joliet & Eastern has filed protests on behalf of itself and of the Chicago, Lake Shore & Eastern against the tentative valuation served by the Interstate Commerce Commission as to its property. In addition to the general allegations of incompleteness and omissions, which are in general similar to those filed by other roads, the company gives in an exhibit a comparison of the items of cost of reproduction new which it considers proper in comparison with those found by the commission. For the Elgin, Joliet & Eastern this total is \$32,095,738, as compared with \$16,241,211 found by the commission; for the Chicago, Lake Shore & Eastern, \$38,565,941, against \$23,758,025; for the Joliet & Blue Island, \$678,982 against \$477,322. These figures include land.

Among the items of value said to have been omitted are: \$864,111 for cost of materials and supplies on hand; working capital; net current assets, \$4,657,871 for the E. J. & E., and \$4,708,482 for the C. L. S. & E.; assessments for public improvements, \$39,610 and \$11,917; \$1,020,000 for contingencies; and the cost of developing the physical property. Objection is made to the unit prices used, and it is stated that the construction period should be not less than 48 months instead of 36 months. The investment in road and equipment and the original cost to date of the E. J. & E. is placed at not less than \$21,000,000, and of the C. L. S. & E. at not less than \$24,000,000.

**GERMANY'S PRODUCTION OF IRON.**—At a meeting of the Union of German Iron and Steel Industries some interesting information was given on the German production of iron during the war, as compared with that of other countries. The German production of pig-iron during 1916 may be estimated at about 13,000,000 tons, against 11,790,000 tons in 1915 and 14,380,000 tons in 1914.

## EUROPE'S HIDDEN ARMIES OF RAILWAY PROTECTORS

By Our Special European Correspondent.

Passengers on trains hundreds of miles distant from any army front now and then notice solitary soldiers standing at attention as the train whizzes by. Each of these soldiers is a representative of a huge force, the occupation of which is not to fight the enemy but to guard railway bridges, tunnels, tracks and stations so that they may not be destroyed by some skillful mine setter in the employ of the enemy who seeks by such destruction to embarrass for days or weeks the transportation of army supplies and troops.

If the traveler is going across country in an automobile, he may perhaps also see these lonely soldiers, particularly at railway crossings. The chances are, however, that he will not see them except around the big cities like Paris or Milan or Rome or Berlin where this class of soldiery is so numerous that the traveler cannot but note its presence as day or night it stands on guard, with bayonet fixed, eye alert, always looking sharply at the men who come and go. In all Europe there are at least 500,000 men engaged in protecting the railroads, on an average five men for every mile of track.

The majority of these men are never seen by the public because frequently their usefulness depends on their not being seen. Those lonely figures the eye picks out on long journeys are hardly more than scarecrows. The officers and soldiers at every important or semi-important railway station to regulate military traffic, to protect the lines and to care for soldiers en route, are not by any means all of the men employed as railway protectors.

The business of protecting railways and the troop and other trains upon them is among the most important work necessary behind the lines, because of the many serious attempts that are made by the enemy daily to work destruction on the permanent works of the railroad or to destroy military freight and kill troops by train wrecking.

As the war has gone on, these attempts have become more and more successful, not only in France, England and Italy, but also in Germany. When chronicled in the daily news, they are often set down as "accidents." A close observer of the causes of these "accidents" will find, however, that they are not caused by technical faults but by a carelessness too patent to be attributed to carelessness. Often the causes of these "accidents" are too strikingly alike. In France, for instance, many of the disasters resulting in considerable loss of life have been caused by the inexplicable presence of a heavily laden car in the path of an express, or by a troop train parting in the middle when on an incline, and frequently at night; and only one conclusion can be drawn from a repetition of such causes.

In the same manner, a careful investigation into the "accidents" in American munition factories might possibly reveal criminal intent. Should the railroads of the United States have a striking series of serious accidents before the European war is settled, it might not be well to try to explain them as the result of technical carelessness.

As the war has progressed, the trains have come to have many kinds of guards on them; first, in the persons of the crews, then in the persons of uniformed soldiers and policemen who inspect each traveler, and finally by men in plain clothes. The tracks, bridges and tunnels, too, are watched by men in civilian clothes, by men disguised as workmen or regular employees. Railroad employees also are subjected to a closer watch and their past history is more closely investigated.

There is a lesson in organization and mobilization for the United States in the careful and elaborate manner in which Europe's railroads are guarded. In the increasing of our military forces, naturally our engineering field

corps will be vastly enlarged. But it should not be forgotten that in the building of Europe's armies, there is a special railroad engineering corps for offensive and defensive purposes, and that much attention is paid to the formation of highly trained railroad regiments whose business it is to superintend, in peace times, the construction of tunnels and bridges and important tracks with a view to their military use in time of war. For instance, there is not an important bridge or tunnel or section of track on any European frontier that, when built, was not arranged so that it could be destroyed within a few minutes and definitely put out of use for many weeks or months. There are special secret compartments that may be charged with an explosive such as melinite, these compartments being in the superstructure or in the foundations. Upon the explosion in a given vital point the whole work is put out of commission so the enemy will be baffled to reconstruct the whole for his purposes.

With all that has been published about the war in the United States, little or no attention has been given these hidden railroad armies, their organization, and their methods of operation. Much has been written about the mobilization of the troops by the railroads, of their carrying of armies to the battle fronts. Napoleon, it has been freely stated, was the first to organize spy systems properly, and he did not limit his efforts to political information or even military information. Since his day, the Germans have followed in his steps and organized themselves physically in the enemy country. Before the present war they knew not only many secrets of fortresses, but they also specialized on the destruction of the transportation facilities of the enemy. As this war daily proves, they have pushed out their hidden lines to the destruction of moving trains and by apparently natural causes, which might have been accidental but which too often are not.

The vast protective network which the Germans and their enemies have built up has its first basis in the detective and police departments. But this is merely elemental. The railroads and the military authorities of necessity must do the main part of the work. Therefore, in each country the basis of the protective network is the territorial army, the army that has served its active term and which is held in reserve. These railroad protectors are men over 40 years of age. In France, for instance, the term of military service is 28 years, three in the regular active front line, 11 in the active reserve, seven in the territorial, and seven in the territorial reserve.

In the present war the territorials and the territorial reserves have been called upon for railroad watching, and they were on the job the very day war was declared, not only along the frontiers of the respective countries at war but far in the interior, at every point where large bodies of troops were being mobilized and at every point where an interruption in the traffic might be made.

Despite the strict surveillance exercised on all strangers by the police, it is practically impossible to rid a country of its internal enemies, either its own citizens on a foreign payroll, naturalized citizens, citizens of neutral countries, or citizens of enemy countries bearing passports of neutral countries.

In a previous article printed in the *Railway Age Gazette* of December 8, 1916, I described the strategic importance to all the railroads of France of the belt-line around Paris. Just after the article was written, an English troop train broke in two along that belt line, at Massy-Palaiseau, injuring a number of troops. A worn coupling was supposed to have been the cause of the "accident." Following hard on this affair, came a much more important disaster, a terrific explosion in a large munition factory at the same point. It was destroyed but no persons were killed, the explosion taking place on a Sunday. Apparently other per-

sons than the present writer had made it their business to study the importance of this belt-line. Indeed, it is impossible to hide the importance of such lines, and it is next to impossible to protect them effectually.

The explosion at Dresden, Germany, this January past, involving tremendous loss of life and property, possibly the biggest disaster of the kind which has yet occurred during the war, might be traced to military sources. The same might be said of the burning of the large department store, the Bonmarch at Paris, in November, 1915. Every arm, every weapon is considered fair in such business. The wrecking of various English and French expresses since the war began, the various railway disasters in Italy, the most recent of which this January, near Tarente, resulted in the killing of perhaps 100 French soldiers, are put down by some to the same causes. Two of Italy's largest battleships have been destroyed by the same class of workers, the head of this particular band having been traced to the holy precincts of the Vatican in Rome.

Curious as it may seem, frequently this class of operators is discovered by accident. For instance, a French woman of Alsatian origin happened to be walking along the streets of Paris last winter and overheard two men ahead of her talking in the dialect of her province. She listened, surmised that they were spies, had them arrested by the nearest policeman, and thereby led to the capture of men involved in train wrecking.

It is for such reasons as this that so large a body of territorials and other troops must be employed in watching, guarding, the trains and tracks which have become the very sinews of the great war. The immensity of this phase of the transportation problem for the United States, in case of war, may be realized when it is considered that it has nearly twice the total mileage of the countries now at war to defend and that she has infinitely more and larger bridges and that her tracks are not fenced in as are those of Europe.

### POLES PURCHASED IN 1915

Bulletin No. 519 by A. M. McCreight issued by the United States Department of Agriculture gives the statistics compiled by the Forest Service on the number of poles purchased during 1915 in the United States by the telephone and telegraph companies, steam and electric railroads, and electric light, heat, and power companies. The census was taken exclusively by correspondence with approximately 17,000 purchasers, representing practically all the pole users in the country. The figures given in this bulletin represent between 90 and 95 per cent of the poles purchased.

Table I shows the number of poles purchased each year from 1907 to 1911 and for the year 1915, by kind of wood. Figures for 1911 and previous years were taken from reports compiled in co-operation with the Bureau of the Census. Statistics were not obtained for the years 1912 to 1914.

| TABLE I.—POLES PURCHASED, 1907 TO 1911 AND 1915 |           |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
| Kind of wood                                    | 1915      | 1911      | 1910      | 1909      | 1908      | 1907      |
| All kinds.....                                  | 4,077,964 | 3,418,020 | 3,870,694 | 3,738,740 | 3,249,154 | 3,283,268 |
| Cedar .....                                     | 2,521,769 | 2,100,144 | 2,431,567 | 2,439,825 | 2,200,139 | 2,109,477 |
| Chestnut .....                                  | 651,643   | 693,489   | 677,517   | 608,066   | 516,049   | 630,282   |
| Pine .....                                      | 546,233   | 161,690   | 184,677   | 179,586   | 116,749   | 155,960   |
| Oak .....                                       | 199,442   | 199,590   | 265,290   | 236,842   | 160,702   | 76,450    |
| Cypress .....                                   | 67,644    | 72,995    | 75,459    | 77,677    | 90,579    | 100,368   |
| All other .....                                 | 91,233    | 190,112   | 236,184   | 196,744   | 164,936   | 210,731   |

A total of 4,077,964 poles was reported as purchased during 1915, which represents an increase of 659,944, or 16 per cent, as compared with the number reported purchased in 1911. It is the largest number of poles reported in any single year.

The poles are supplied principally from the northern white-cedar region of the Lake States, the chestnut region of the eastern portion of the country, and the western red-cedar

region of the Northwest, which includes Idaho, Oregon and Washington. Cedar (including northern white, western red, southern white, and red) supplied 2,521,769 poles, or 61 per cent of the total number purchased.

Table II shows the number of poles purchased in 1915, classified according to class of purchaser and kind of wood. The steam railroads purchased 966,932 poles or 21 per cent of the total. This is an increase of 739,315 poles or 76 per cent as compared with their purchases in 1911.

TABLE II.—CLASSIFICATION OF POLES PURCHASED IN 1915.

| Kind of wood.              | Total.    | Tele-<br>phone<br>and tele-<br>graph<br>com-<br>panies. | Electric<br>railways,<br>light, and<br>power<br>com-<br>panies. | Steam<br>railroads. |
|----------------------------|-----------|---|---|---------------------|
| All kinds .....            | 4,077,964 | 1,680,880   | 1,430,122   | 966,962             |
| Northern white cedar ..... | 1,747,210 | 1,029,219   | 239,864   | 478,127             |
| Chestnut .....             | 651,643   | 336,496   | 275,304   | 39,843              |
| Western red cedar .....    | 567,770   | 105,590   | 422,312   | 39,868              |
| Pine .....                 | 546,233   | 69,787  | 388,210   | 88,236              |
| White oak .....            | 177,799   | 34,644  | 13,110  | 130,045             |
| Red cedar .....            | 117,545   | 21,386  | 8,424   | 87,735              |
| Southern white cedar ..... | 89,244    | 16,661  | 14,686  | 57,897              |
| Cypress .....              | 67,644    | 24,162  | 18,174  | 25,308              |
| Red oak .....              | 21,643    | 6,912   | 13,001  | 1,730               |
| All other .....            | 91,233    | 36,023  | 37,037  | 18,173              |

While durable woods are generally preferred as pole timbers, there is a tendency toward purchasing other species which are not as durable, but which can be rendered less liable to decay by preservative treatment. Much progress is being made in the butt treatment of cedar poles by the open-tank method, which is being used extensively in Idaho, Washington and California, and in the Minneapolis and Chicago districts. A considerable proportion of the cedar poles sold receive a butt treatment.

The Forest Service obtained information from 102 treating plants operating throughout the United States which reported a total of 125,639 poles treated in 1915. This is estimated to be only about one-half of the actual number subjected to treatment. A large number received a brush treatment and these were not reported. In treating the poles in 1915 the principal preservative reported was creosote oil, the average absorption being about 11 lb. to the cu. ft. About 85 per cent of the poles treated were yellow pine, while others reported were western red cedar and Douglas fir.

RAILWAY DEVELOPMENT IN AFRICA.—At the outbreak of the war Africa had a total of something like 25,000 miles of completed railway, and was building new lines at the rate of about 2,000 miles a year. At the firing of the first shot much important construction work was dropped instantly, not to be resumed again until the war is over. This affected what would probably have amounted to 4,000 miles of new line that would have been completed in the two and a half years the war has lasted so far. This loss is partially offset by the new construction—purely military lines for the better prosecution of certain campaigns—that might not have been undertaken for many years had not the war rendered it imperative from a strategic standpoint. Such was the linking up of the Union of South Africa system with that of German South-West Africa by Botha in pushing his campaign for the conquest of the latter region; and such the running together of the railheads of a branch from the Uganda railway and the Usambara line at the frontier of German East and British East Africa. Similar construction has also taken place in Nigeria, the Cameroons, northern Rhodesia and probably the Belgian Congo. The total mileage that has been added for military purposes is difficult to estimate, but it would hardly be in excess of from 20 to 25 per cent of what would have been built had the peace-time rate of construction been maintained. Moreover, like all strategic railway, this military construction is worth far less as an economic asset than an equal mileage of line built for purely commercial purposes.—*World Outlook.*

# General News Department

The American Railway Association reports the net shortage of freight cars in the United States on March 1, as 124,973; which compares with a shortage of 109,988 cars on February 1.

The governor of New Jersey has signed the bill amending the full crew law. The new law becomes effective on July 1. The Public Utility commissioners, having authority under the new law to prescribe the number of men to be required on trains, is to hold a series of meetings with the railroad officers and with the trainmen.

In the disastrous cyclone at New Albany, Ind., March 23, in which 36 persons were killed, a coal chute of the Chicago, Indianapolis & Louisville, was blown down and destroyed. Traffic on the road was tied up for several hours. A number of signal towers on the Pennsylvania Lines and on the Southern Railway were demolished.

The Delaware & Hudson Company plans to plant 1,250,000 trees this year along its line in the vicinity of Loon Lake, in northern New York. This company has a nursery at Bluff Point, on Lake Champlain, where about 5,000,000 young trees are growing. The Delaware & Hudson Company controls 106,000 acres of land in the Adirondack Mountains west of Plattsburg, N. Y. The company has already planted millions of trees on this tract.

Mention has already been made in the *Railway Age Gazette* of the organization of committees of railway operating and traffic officers for the movement of troops and supplies in the event of war. A sub-committee of freight traffic officers is now

in the process of formation, with the following tentative organization: Central territory, E. Morris, Chicago, chairman of the Central Freight Association; western territory, E. B. Boyd, Chicago, chairman of the Western Trunk Line committee, and R. H. Countiss, Chicago, chairman of the Transcontinental Freight Bureau; New England territory, L. H. Kentfield, New Haven, Conn., chairman of the New England Freight Association; southeastern territory, L. C. Chalenor, Atlanta, Ga., chairman of the Southeastern Freight Association; southwestern territory, F. A. Leland, St. Louis, chairman of the Southwestern Tariff Bureau; eastern territory, C. C. McCain, New York, chairman of the Trunk Line Association. These men, after a conference with the War Department at Washington, proposed that military impedimenta should be transported at second-class rates. This proposition has been rejected by the government, and another meeting will soon be held to settle the matter of rates. For some time the passenger sub-committees have been engaged in the preparation of detailed charts, under the direction of the Council of National Defense, dealing with the quickest routes for the movement of troops and supplies from any part in the United States to the Atlantic and Pacific coasts, and to the Mexican border.

## Operating Revenues and Expenses of Express Companies

The Interstate Commerce Commission has issued the following statement subject to revision, compiled from the monthly reports of operating revenues and operating expenses of the principal express companies for October, 1916:

| FOR THE MONTH OF OCTOBER                       |                      |              |                      |              |                      |             |                            |              |                      |             |
|--|----------------------|--------------|----------------------|--------------|----------------------|-------------|----------------------------|--------------|----------------------|-------------|
| Item   | Adams Express Co.    |              | American Express Co. |              | Canadian Express Co. |             | Great Northern Express Co. |              | Northern Express Co. |             |
|  | 1916                 | 1915         | 1916                 | 1915         | 1916                 | 1915        | 1916                       | 1915         | 1916                 | 1915        |
| Mileage of all lines covered..                 | 45,286.98            | 44,930.22    | 74,038.64            | 74,151.22    | 12,049.93            | 10,238.13   | 9,837.99                   | 9,582.80     | 8,274.70             | 8,233.03    |
| Charges for transportation...                  | \$4,112,520          | \$3,577,271  | \$5,831,539          | \$4,806,327  | \$410,282            | \$351,416   | \$338,303                  | \$287,717    | \$280,236            | \$246,436   |
| Express privileges—Dr. ....                    | 1,988,322            | 1,759,028    | 2,877,378            | 2,433,092    | 211,226              | 165,433     | 206,686                    | 175,257      | 152,557              | 134,141     |
| Operations other than transp. ....             | 54,969               | 51,831       | 273,312              | 251,505      | 6,479                | 5,612       | 6,221                      | 6,058        | 5,223                | 4,811       |
| Total operating revenues.....                  | 2,179,166            | 1,870,074    | 3,227,373            | 2,624,739    | 205,535              | 191,595     | 137,839                    | 118,518      | 132,903              | 117,106     |
| Operating expenses .....                       | 2,137,259            | 1,571,698    | 2,996,607            | 2,220,474    | 170,207              | 138,964     | 103,732                    | 90,222       | 98,861               | 87,910      |
| Net operating revenue.....                     | 41,907               | 298,376      | 230,765              | 404,264      | 35,327               | 52,630      | 34,107                     | 28,296       | 34,041               | 29,195      |
| Uncollectible rev. from transp. ....           | 367                  | 881          | 1,693                | 660          | 54                   | 18          | 6                          | 14           | 75                   | 429         |
| Express taxes .....                            | 23,299               | 17,137       | 45,325               | 47,205       | 4,700                | 4,200       | 4,273                      | 3,710        | 5,500                | 5,000       |
| Operating income .....                         | 18,239               | 280,356      | 183,746              | 356,398      | 30,572               | 48,411      | 29,826                     | 24,571       | 28,466               | 23,765      |
|  |                      |              |                      |              |                      |             |                            |              |                      |             |
| Item   | Southern Express Co. |              | Wells Fargo & Co.    |              | Western Express Co.  |             | Total for companies named. |              |                      |             |
|  | 1916                 | 1915         | 1916                 | 1915         | 1916                 | 1915        | 1916                       | 1915         |                      |             |
| Mileage of all lines covered (miles)).....     | 34,774.60            | 34,754.60    | 107,711.80           | 114,400.01   | 5,248.89             | 5,232.87    | 297,223.53                 | 301,522.88   |                      |             |
| Charges for transportation .....               | \$1,392,073          | \$1,319,721  | \$4,768,889          | \$3,870,976  | \$132,909            | \$116,639   | \$17,466,755               | \$14,576,507 |                      |             |
| Express privileges—Dr. ....                    | 808,451              | 669,574      | 2,446,375            | 2,010,493    | 65,022               | 54,466      | 8,756,022                  | 7,401,488    |                      |             |
| Operations other than transportation.....      | 42,845               | 34,729       | 110,628              | 97,607       | 4,339                | 4,010       | 503,922                    | 456,166      |                      |             |
| Total operating revenues .....                 | 826,467              | 684,876      | 2,433,142            | 1,958,091    | 72,226               | 66,182      | 9,214,655                  | 7,631,185    |                      |             |
| Operating expenses .....                       | 605,153              | 526,074      | 2,062,474            | 1,639,955    | 60,410               | 54,316      | 8,234,707                  | 6,329,618    |                      |             |
| Net operating revenue .....                    | 221,314              | 158,801      | 370,668              | 318,135      | 11,816               | 11,865      | 979,948                    | 1,301,567    |                      |             |
| Uncollectible revenue from transportation..... | 246                  | 49           | 728                  | 855          | 1                    | 3           | 3,175                      | 2,914        |                      |             |
| Express taxes .....                            | 14,750               | 13,377       | 45,175               | 32,961       | 1,598                | 1,256       | 144,623                    | 124,849      |                      |             |
| Operating income .....                         | 206,317              | 145,374      | 324,764              | 284,318      | 10,215               | 10,606      | 832,150                    | 1,173,804    |                      |             |
|  |                      |              |                      |              |                      |             |                            |              |                      |             |
| FOR THE FOUR MONTHS ENDED WITH OCTOBER         |                      |              |                      |              |                      |             |                            |              |                      |             |
| Item   | Adams Express Co.    |              | American Express Co. |              | Canadian Express Co. |             | Great Northern Express Co. |              | Northern Express Co. |             |
|  | 1916                 | 1915         | 1916                 | 1915         | 1916                 | 1915        | 1916                       | 1915         | 1916                 | 1915        |
| Charges for transportation...                  | \$15,686,229         | \$13,258,350 | \$22,118,670         | \$18,146,448 | \$1,576,121          | \$1,359,383 | \$1,401,054                | \$1,244,644  | \$1,273,239          | \$1,154,676 |
| Express privileges—Dr. ....                    | 7,602,275            | 6,552,700    | 10,989,869           | 9,144,569    | 836,027              | 689,816     | 853,978                    | 755,420      | 689,534              | 620,851     |
| Operations other than transp. ....             | 207,504              | 192,560      | 1,023,670            | 886,184      | 23,977               | 21,127      | 24,856                     | 22,110       | 18,892               | 17,275      |
| Total operating revenues.....                  | 8,291,458            | 6,898,210    | 12,152,471           | 9,888,064    | 764,072              | 690,694     | 571,933                    | 511,334      | 602,597              | 551,100     |
| Operating expenses .....                       | 7,890,090            | 6,009,664    | 11,211,303           | 8,646,725    | 661,274              | 553,803     | 400,106                    | 362,656      | 399,369              | 365,990     |
| Net operating revenue.....                     | 401,368              | 888,546      | 941,167              | 1,241,339    | 102,798              | 136,890     | 171,826                    | 148,678      | 203,228              | 185,109     |
| Uncollectible rev. from transp. ....           | 1,731                | 2,010        | 4,874                | 2,756        | 121                  | 112         | 30                         | 93           | 114                  | 488         |
| Express taxes .....                            | 88,173               | 65,823       | 187,570              | 172,835      | 18,800               | 16,800      | 27,915                     | 16,107       | 21,500               | 20,000      |
| Operating income .....                         | 311,463              | 820,712      | 748,722              | 1,065,746    | 83,876               | 119,977     | 143,881                    | 132,476      | 181,613              | 164,620     |
|  |                      |              |                      |              |                      |             |                            |              |                      |             |
| Item   | Southern Express Co. |              | Wells Fargo & Co.    |              | Western Express Co.  |             | Total for companies named. |              |                      |             |
|  | 1916                 | 1915         | 1916                 | 1915         | 1916                 | 1915        | 1916                       | 1915         |                      |             |
| Charges for transportation.....                | \$5,504,463          | \$4,496,484  | \$17,963,577         | \$14,459,546 | \$580,393            | \$485,621   | \$66,103,751               | \$54,605,157 |                      |             |
| Express privileges—Dr. ....                    | 2,796,174            | 2,288,787    | 9,181,716            | 7,483,677    | 281,651              | 225,457     | 33,231,227                 | 27,761,280   |                      |             |
| Operations other than transportation.....      | 127,918              | 108,089      | 418,899              | 389,317      | 15,720               | 14,309      | 1,861,440                  | 1,630,973    |                      |             |
| Total operating revenues .....                 | 2,836,206            | 2,315,786    | 9,200,760            | 7,365,186    | 314,463              | 274,473     | 34,733,964                 | 28,494,850   |                      |             |
| Operating expenses .....                       | 2,285,342            | 2,001,665    | 7,657,524            | 6,375,007    | 243,294              | 218,357     | 30,748,306                 | 24,533,870   |                      |             |
| Net operating revenue .....                    | 550,863              | 314,121      | 1,543,236            | 990,179      | 71,168               | 56,116      | 3,985,658                  | 3,960,980    |                      |             |
| Uncollectible revenue from transportation..... | 419                  | 209          | 4,689                | 4,397        | 19                   | 23          | 12,002                     | 10,092       |                      |             |
| Express taxes .....                            | 58,642               | 53,264       | 166,424              | 137,079      | 4,901                | 4,058       | 573,928                    | 485,970      |                      |             |
| Operating income .....                         | 491,802              | 260,647      | 1,372,122            | 848,701      | 66,246               | 52,033      | 3,399,728                  | 3,464,918    |                      |             |

### Railroad Taxes in Wisconsin

The total taxes payable by all railroads of Wisconsin under the final 1917 assessment amount to \$5,328,477, an increase of 12.07 per cent over the preceding year. Of this amount the Chicago & North Western will pay \$1,792,911, or \$826 per mile, an increase of 9.32 per cent over the preceding year; the Chicago, Milwaukee & St. Paul, \$1,495,246, or \$820 per mile, an increase of 8.11 per cent over the preceding year; the Chicago, St. Paul, Minneapolis & Omaha, \$529,566, or \$678 per mile, an increase of 18.24 per cent over the preceding year, and the Wisconsin Central, \$623,019, or \$638 per mile, an increase of 21.27 per cent over the preceding year.

### Wages and Hours of Work

A large number of men in the shops of the Western Maryland at Hagerstown, Md., struck last week for an increase in pay.

The Chicago & Alton has granted an increase of two cents an hour in the pay of track laborers, and \$5 a month to section foremen, effective April 1.

The Lehigh Valley has made an advance of two cents an hour in the pay of machinists, boilermakers and car repairers at Hazleton, Weatherly, Mount Carmel and Delano. The increases are in line with those recently made at Easton and Sayre.

The Pennsylvania Railroad has increased the pay of train dispatchers and telegraph operators. It is said that the number of men affected is 4,000, and the aggregate addition to payrolls yearly about \$200,000.

Beginning on April 2 the men in the Altoona shops of the Pennsylvania Railroad, working on repairs of cars and locomotives, will work 55 hours a week instead of 65, the extra work of the winter having been finished.

The shopmen's unions on 20 of the principal western railroads have asked to have their pay increased 10 cents an hour, and to have the workday reduced to eight hours. These unions were granted an increase in pay, following the negotiations of last autumn, and their day was reduced to nine hours. An officer of the Rock Island lines says that if the new demands are granted, the additional expense on his lines will amount annually to nearly \$3,000,000.

### Eight-Hour Day for Telegraphers

The Western Union Telegraph Company announces that, beginning May 1, the eight-hour day will be put into effect in all of its larger offices, and in smaller offices where practicable. Operators who work partly for a railroad company or other employer are not affected by the order. It is understood that large numbers of the operators will continue to work nine hours a day, as at present, and that thus their pay will be increased 12½ per cent. The reduction in the length of the work day will be applied also, where practicable, to employees in the construction and repair department.

### Legislation in Texas

At the recent regular session of the Texas legislature, an act was passed authorizing the sale or lease of the State Railroad; or, if not sold, empowering the governor to issue bonds for its extension either from Palestine to Dallas, 100 miles, or from Palestine to Waco, 100 miles. The most restrictive piece of legislation affecting railroads was that which prohibits them from confiscating freight. The demand for this law grew out of the recent wholesale confiscation of coal by some of the railroads. An act was also passed which permits interurban railroads to own and operate public utility plants in towns and cities along or adjacent to their respective lines.

### Pittsburgh Railway Club

The Pittsburgh Railway Club is taking an active part in helping the Pittsburgh Chapter of the American Red Cross secure an enrollment of 25,000 members. In accordance with a decision made at the meeting March 26 enrollment blanks have been sent to all the club's members, and they are now busily getting names for the Red Cross. J. Rogers Flannery is chairman of the Pittsburgh Chapter.

## MEETINGS AND CONVENTIONS

*The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.*

- AIR BRAKE ASSOCIATION.**—F. M. Nellis, Room 3014, 165 Broadway, New York City. Next annual convention, May 1-4, 1917, Hotel Chisca, Memphis, Tenn.
- AMERICAN ASSOCIATION OF FREIGHT AGENTS.**—R. O. Wells, Illinois Central, Chicago, Ill. Next meeting, June, 1917, Denver.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.**—J. W. Taylor, 1112 Karpen Bldg., Chicago. Next meeting, June 13-20, Atlantic City, N. J.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York. Next convention, May 21-24, Cincinnati, Ohio.
- ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.**—E. R. Woodson, Rooms 1116-8 Woodward Bldg., Washington, D. C. Annual meeting, May 30, 1917, Hotel Jefferson, Richmond, Va.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.**—Willis H. Failing, Terminal Station, Central of New Jersey, Jersey City, N. J. Next meeting, May, 1917, Cincinnati, Ohio.
- CANADIAN RAILWAY CLUB.**—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.**—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.
- CENTRAL RAILWAY CLUB.**—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- CINCINNATI RAILWAY CLUB.**—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.
- ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.**—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.
- FREIGHT CLAIM ASSOCIATION.**—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va. Annual convention, June 19, Chicago, Ill.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—J. G. Crawford, C. B. & O. R. R., 702 E. 51st St., Chicago. Next meeting, May 14-17, Hotel Sherman, Chicago.
- MASTER BOILER MAKERS' ASSOCIATION.**—Harry D. Vought, 95 Liberty St., New York. Annual convention, May 22-25, Hotel Jefferson, Richmond, Va.
- MASTER CAR BUILDERS' ASSOCIATION.**—J. W. Taylor, 1112 Karpen Bldg., Chicago. Next meeting, June 13-20, Atlantic City, N. J.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.
- NEW YORK RAILROAD CLUB.**—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.
- NIAGARA FRONTIER CAR MEN'S ASSOCIATION.**—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.
- PEORIA ASSOCIATION OF RAILROAD OFFICERS.**—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.
- RAILROAD CLUB OF KANSAS CITY.**—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.
- RAILWAY CLUB OF PITTSBURGH.**—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August. Pittsburgh Commercial Club Rooms, Colonial Annex Hotel, Pittsburgh.
- RAILWAY DEVELOPMENT ASSOCIATION.**—D. C. Welty, Commissioner of Agriculture, St. L., Iron Mt. & So., 1047 Railway Exchange Bldg., St. Louis. Annual meeting, May 9-11, Louisville, Ky.
- RAILWAY STOREKEEPERS' ASSOCIATION.**—J. P. Murphy, N. Y. C. R. R., Box C, Collinwood, Ohio. Annual convention, May 21-23, Chicago.
- RICHMOND RAILROAD CLUB.**—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.
- SOUTHERN & SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.
- TOLEDO TRANSPORTATION CLUB.**—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.
- TRAFFIC CLUB OF CHICAGO.**—W. H. Wharton, La Salle Hotel, Chicago.
- TRAFFIC CLUB OF NEW YORK.**—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.
- TRAFFIC CLUB OF PITTSBURGH.**—D. L. Wells, Gen'l Ag't, Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings bi-monthly, Pittsburgh.
- TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.**—J. F. Mackie, 7122 Stewart Ave., Chicago. Next meeting, June 19, Fresno, Cal.
- UTAH SOCIETY OF ENGINEERS.**—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.
- WESTERN CANADA RAILWAY CLUB.**—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.
- WESTERN RAILWAY CLUB.**—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.
- WESTERN SOCIETY OF ENGINEERS.**—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

## REVENUES AND EXPENSES OF RAILWAYS

MONTH OF JANUARY, 1917

| Name of road.                           | Average mileage operated during period. | Operating revenues— |             |                    | Operating expenses—                |             |           | Net from railway operation. | Railway tax accruals. | Operating income (or loss). | Increase (or decr.) comp. with last year. |
|---|---|---------------------|-------------|--------------------|------------------------------------|-------------|-----------|-----------------------------|-----------------------|-----------------------------|---|
|   |   | Freight.            | Passenger.  | Total (inc. misc.) | Maintenance of way and structures. | Equip-ment. | Traffic.  | Trans- portation.           | Miscel- laneous.      | General.                    | Total.                                    |
| Duluth, Winnipeg & Pacific.....         | 191                                     | \$134,992           | \$28,330    | \$166,997          | \$9,786                            | \$25,596    | \$1,968   | \$73,898                    | \$116                 | \$7,105                     | \$118,468                                 |
| Kansas City, Mex. & Orient of Missouri  | 272                                     | 80,230              | 11,229      | 96,270             | 12,782                             | 31,292      | 5,561     | 45,128                      | .....                 | 6,144                       | 100,907                                   |
| New Orleans, Mobile & Chicago †.....    | 402                                     | 143,862             | 26,267      | 180,426            | 25,552                             | 29,313      | 3,864     | 55,198                      | 6                     | 8,292                       | 122,225                                   |
| Oahu Railway & Land Co.....             | 114                                     | 65,284              | 21,787      | 92,426             | 11,387                             | 8,669       | 922       | 26,335                      | .....                 | 4,691                       | 52,004                                    |
| Pittsburgh, Shawmut & Northern.....     | 205                                     | 118,235             | 5,395       | 126,433            | 15,069                             | 49,924      | 810       | 48,133                      | .....                 | 4,167                       | 118,103                                   |
| Staten Island Rapid Transit Ry. Co..... | 24                                      | 59,864              | 46,193      | 115,287            | 18,091                             | 10,758      | 1,203     | 57,103                      | .....                 | 4,026                       | 91,180                                    |
| Vandalia * .....                        | ...                                     | .....               | .....       | .....              | .....                              | .....       | .....     | .....                       | .....                 | .....                       | .....                                     |
| Delaware, Lackawanna & Western.....     | 955                                     | \$2,923,532         | \$612,568   | \$3,966,725        | \$261,931                          | \$658,001   | \$68,970  | \$1,479,178                 | \$33,859              | \$80,888                    | \$2,581,132                               |
| New Orleans & Great Northern.....       | 285                                     | 86,055              | 25,888      | 121,106            | 14,203                             | 20,774      | 2,834     | 36,752                      | 259                   | 6,476                       | 81,297                                    |
| Peoria & Pekin Union.....               | 19                                      | 13,136              | 5,575       | 88,523             | 8,101                              | 12,073      | 7         | 56,333                      | .....                 | 3,616                       | 80,130                                    |
| St. Louis, Brownsville & Mexico.....    | 548                                     | 174,636             | 183,319     | 380,403            | 51,248                             | 34,364      | 9,877     | 104,805                     | .....                 | 10,006                      | 208,530                                   |
| Southern Pacific Company.....           | 7,065                                   | 6,488,092           | 2,207,533   | 9,544,985          | 1,048,913                          | 1,455,969   | 195,616   | 3,576,726                   | 159,925               | 271,168                     | 6,682,664                                 |
| Delaware, Lackawanna & Western.....     | 955                                     | \$6,180,581         | \$1,293,123 | \$8,401,402        | \$533,549                          | \$1,372,694 | \$144,658 | \$3,081,358                 | \$67,444              | \$166,486                   | \$5,362,436                               |
| New Orleans Great Northern.....         | 285                                     | 204,139             | 50,967      | 273,814            | 27,454                             | 43,673      | 6,095     | 81,732                      | 501                   | 13,035                      | 172,491                                   |
| Peoria & Pekin Union.....               | 19                                      | 27,332              | 11,768      | 190,325            | 16,786                             | 26,255      | 17        | 114,958                     | .....                 | 6,526                       | 164,541                                   |
| St. Louis, Brownsville & Mexico.....    | 548                                     | 393,155             | 309,623     | 750,346            | 97,173                             | 72,059      | 17,587    | 216,326                     | .....                 | 20,419                      | 419,930                                   |
| Southern Pacific Company.....           | 7,065                                   | 13,434,730          | 4,597,834   | 19,754,994         | 2,157,211                          | 3,039,931   | 376,057   | 7,475,107                   | 328,280               | 561,474                     | 13,882,784                                |

\* Succeeded by Gulf, Mobile &amp; Northern Railroad Co.

† Merged with Pittsburgh, Cincinnati, Chicago &amp; St. Louis Ry. on January 1, 1917.

## Traffic News

A bill has been introduced in the lower house of the Illinois state legislature, which proposes to increase the intrastate passenger fare of 2 cents to 2.4 cents, to correspond with the interstate rate now in effect.

A bill was passed in the Texas state senate last week, and has been submitted to the governor for his signature, amending the anti-pass law to permit members of the legislature and state officers to ride on passes.

A hearing was held by the Official Classification Committee at its office in New York City on March 28, on proposed changes in official classification. A second hearing will be held at the Congress hotel, Chicago, on April 5.

The New York State Public Service Commission, second district, has authorized the Long Island road to increase its rate for mileage tickets from 2 cents a mile to 2 1/4 cents. The company had asked for authority to increase the rate to 2 1/2 cents.

The hearing on proposed class rates in Central Freight Association Territory, held before W. J. Disque, examiner of the Interstate Commerce Commission, was concluded at Chicago on March 26. The railroads have filed a petition with the commission to make the new rates effective May 1.

William M. Hopkins, formerly general freight agent of the Minneapolis & St. Louis, and subsequently a member of the Uniform Classification Committee and manager of the transportation department of the Chicago Board of Trade, has opened an office in Chicago for the practice of law, with the intention of specializing in cases before the Interstate Commerce Commission and the various state commissions.

The Lehigh Valley has opened a new freight station in New York, Pier 44, East River. It is at the foot of Jackson street, Manhattan, just off Grand street, in a section of the lower east side which is growing rapidly as a manufacturing center. The building is two stories high, and it has, in addition to a general freight elevator, two barrel elevators, operated by electric motors and having a capacity of 200 bags or barrels each per hour. There are two chutes, the outlet of one being adjustable and so arranged that bags may be slid directly on to wagons backed up to the loading platform at the street level. The equipment includes a three-ton crane and a twenty-ton automatic truck scale.

The Illinois State Public Utilities Commission has denied the petition of the railroads to be permitted to increase rates on coal 5 cents a ton. It likewise denied an advance to points where 10 cents a ton was proposed in commodity rates on coal, and an advance of 5 cents a ton in the maximum distance scale on coal. The commission, however, allowed an advance of 5 per cent, with a maximum of 5 cents a ton, in rates on coal moving intrastate in Illinois, except through East St. Louis, Alton and intermediate points. It also allowed advances in the maximum rates on coal as follows: For 25 miles or under, 1 per cent; for 50 miles or over 25 miles, 2 per cent; for 75 miles or over 50 miles, 3 per cent; for 100 miles or over 75 miles, 4 per cent; for distances over 100 miles, 5 per cent.

D. H. Davis, sales representative of the Lumber Manufacturers' Agency at Chicago, reports the shipment of a carload of lumber from Winlock, Wash., to Michigan City, Ind., which rivals the heavy loading record of the F. B. Williams Cypress Company, Paterson, La., recently reported in the *Railway Age Gazette*. The Winlock car contained 52,194 ft. B. M. of 2-in. lumber, which weighed 114,780 lb. The record car of the F. B. Williams Cypress Company contained 60,747 ft. B. M. of dressed one-in. cypress, which weighed 118,100 lb. The Lumber Manufacturers' Agency has made extraordinary efforts to conserve the available car supply by heavy loading. During the month of January this company shipped 100 carloads of lumber into the Chicago territory, averaging 27,000 ft. per car, and in February an even better average of 29,682 ft. was made for 70 cars.

## Commission and Court News

### INTERSTATE COMMERCE COMMISSION

The commission has suspended until July 18 tariffs providing for increased rates on matches from St. Louis, Chicago and Memphis rate points to Houston and Galveston, Tex., and points taking the same rates.

The commission has suspended from March 28 until July 26 proposed increased rates on slack coal, c. l., from points in Oklahoma and Arkansas to various destinations in Texas, the amounts of increase varying from 5 cents to 15 cents per net ton.

The commission has suspended until September 20 tariffs providing for increased carload minimum weights on grain and wheat flour between points in Missouri, Kansas and other western states, similar to those named in schedules now under suspension in I. & S. Docket 889.

The commission has further suspended from March 31 until September 30 the operation of tariffs containing revised class and commodity rates between points in Central Freight Association territory, and between points in that territory and points in adjoining territory, the operation of which was originally suspended from December 1 to March 31. This proposed revision of the Central Freight Association scale of rates has recently been the subject of hearings before an examiner of the commission.

#### Rail-Lake-and-Rail Rates on Wheat

*Bay State Milling Company et al. v. Great Lakes Transit Corporation et al. Opinion by Commissioner Daniels:*

Combination rail-lake-and-rail rates on wheat from Minneapolis to complainants' mills in southern Minnesota and southwestern Wisconsin, there milled in transit and sent forward through Milwaukee to New York and other eastern destinations, are held not to be unreasonable or unduly prejudicial.

Combination of local rates on wheat from country stations in the spring wheat territory to Lake Superior ports, and of rates thence, water and rail, to New York and other eastern destinations, slightly lower than the combination of local rates from same points of origin to complainants' mills, and thence to Lake Michigan ports, and of rates thence, water and rail, to the same destinations, are held not to be unreasonable or unduly prejudicial to mills whose product takes the latter route. (43 I. C. C., 338.)

#### Grand Trunk to Keep Canada Atlantic Transit

*Opinion by Commissioner McChord:*

In Lake Line Applications under Panama Canal Act, 33 I. C. C., 699, the Grand Trunk Railway of Canada was denied permission longer to operate the Canada Atlantic Transit Company, a boat line which it owns and operates on the great lakes. The commission on rehearing now allows the Grand Trunk to continue its operation of the steamship company. The Canada Atlantic Transit Company operates a line of boats from Depot Harbor, Ont., on Georgian Bay, the western terminus of the Canada Atlantic Railway, to Chicago, and a line of boats from Depot Harbor to Milwaukee, Wis., plying on the international boundary waters between this country and Canada. The petitioner contended upon rehearing that the refusal to permit it to operate its boat line invades the right of free navigation of the international boundary waters between this country and Canada, which is preserved to the inhabitants of each of said countries by treaties which have been in force for many years.

It has also shown that the elimination of the interest of the petitioner in the transit company would necessarily result in a discontinuance of the water service of that line, which is the only remaining differential rail and lake route to Lake Michigan ports. (43 I. C. C., 286.)

### COURT NEWS

#### Time for Presentation of Claim—Waiver

Bills of lading provided that claims for loss must be presented in writing within four months, etc. The shippers did not take up the matter at all with the railroad until more than four months after a wrongful delivery. In an action for the value of the shipment, the Kansas City Court of Appeals holds that the defense of failure to comply with the notice provision in the shipping contract was complete, and the railroad could not waive it by its conduct in accepting and investigating the claim and rejecting it on different grounds.—*Harellson v. St. Louis & San Francisco (Mo.)*, 191 S. W., 1068.

#### Automatic Couplers on Interstate Interurban Railways

The Circuit Court of Appeals, Second Circuit, holds that the provision of the safety appliance act requiring automatic couplers, excepting on street railways, applies to the hauling of an ordinary freight car by an electric locomotive on an interstate interurban railway. It holds that it is not necessary that trolley cars used on an electric railway between two cities in different states be equipped with automatic couplers, where they are run singly; but they must be so equipped if they are run coupled together, though each runs by the power of its own motor.—*International Ry. Co. v. United States*, 238 Fed., 318.

#### Shipper's Liability for Freight Charges

A shipper who induces a railroad to transport freight in interstate commerce is liable for the lawful freight charges thereon. The Kansas Supreme Court holds that it is unavailing as a defense to an action for the charges on an interstate shipment that the shipper had long had a special understanding whereby the company was to be the agent of the consignee as to all shipments and that he guaranteed the freight charges only on condition that he should be promptly notified by the carrier if any consignee refused to accept a shipment. All special arrangements, agreements, customs, etc., are void.—*Archison, Topeka & Santa Fé v. Stannard & Co. (Kan.)*, 162 Pac., 1176.

#### Releases—Promise of Future Employment

The Arkansas Supreme Court holds that a mere naked promise for the future employment of an injured railroad employee to induce the signing of a release, which promise was not performed, is not sufficient to show fraud in the execution of a release unambiguous in its recitals of a compromise and settlement of the entire matter in dispute, and reciting that the money paid the employee was the sole consideration for the settlement of his disputed claim for damages for personal injuries. A misrepresentation, to constitute fraud, must be of an existing fact which is not true, and not a promise to be performed in the future.—*Scullin v. Newman (Ark.)*, 191 S. W., 922.

#### Damages for Wrongful Removal of Earth

In an action against a railroad for the value of 50,000 cubic yards of clay and a like amount of earth alleged to have been wrongfully removed from a right of way after condemnation, a jury rendered a verdict for the plaintiffs for \$2,600. The plaintiffs contended that the clay and earth, as soon as severed, became merchantable property belonging to them as owners of the fee, for which they were entitled to recover, as for any merchantable commodity, like coal, timber or gravel, its full value at any place to which it was finally removed or used; and the jury were apparently instructed to find damages based on this value. The railroads contended that if it acted honestly in the belief that it was fully within its rights, as the evidence tended to show, the true measure of recovery was the damage to the realty by removing the clay and earth, or at most the value of the soil removed at the place and time it was taken out. There was evidence that such soil had no value at such place and time, and the land was worth as much to the plaintiffs after as before the removal. The Circuit Court of Appeals, Fifth Circuit, reversing judgment for the plaintiffs, holds that the measure of damages was the value of the soil at the time and place of its severance from the realty, not enhanced by the expense of excavating it or of hauling it to the place where it was used.—*Southern v. Meaher*, 238 Fed., 538.

**Federal Employers' Liability Act—Scope of Employment**

In an action brought under the federal employers' liability act for the death of a section foreman who was stabbed by a Mexican employed under him, the petition alleged that the deceased more than once notified his superior officers that the Mexican was a dangerous man and he could not get along with him; that the Mexican had shot one or two men; that the superior officers had answered that he had nothing to fear, and that the company would protect him; that he continued in his work and was stabbed and killed by the Mexican without warning and without provocation. The Kansas Supreme Court held that, on the facts alleged in the petition, no cause of action was stated under the act, for the reason that on the undisputed facts the assault was not committed in the course or scope of the Mexican's employment, nor in the furtherance of the defendant's business.—*Roe-buck v. A. T. & S. F. (Kan.)*, 162 Pac., 1153.

**Transporting Liquor to Dry Territory**

In an action in equity at the relation of the prosecuting attorney of Worth county, Missouri, to restrain the defendant railroad from receiving intoxicating liquors and delivering to persons in that county, the Kansas City Court of Appeals holds that the shipment of intoxicating liquor into a local option county by a common carrier cannot be enjoined by a court of equity regardless of the criminality of the act, where such shipment did not result in the maintenance of a public nuisance, it not appearing that the shipment resulted in drunkenness. If the defendant's act came within the category of a violation of the Missouri statute relating to the delivering of liquor into local option counties, which the court did not decide, the remedy in such a case would be to proceed under the criminal statutes. A court of equity has no jurisdiction to enjoin an act merely because it is criminal.—*State v. C., B. & Q. (Mo.)*, 191 S. W., 1051.

**Demurrage Charges—"Seasonal" Tariff**

A railroad company issued and filed a local tariff, naming special car demurrage rules and charges on lake coal held by the company for transshipment at a lake port during the shipping season, which was fixed as from August 15 to December 31. This tariff was to become effective July 12, and provided that all cars on hand August 15 should be recorded as arriving on that date, and after 10 free days should be subject to local demurrage. In an action for demurrage charges on coal consigned only during the shipping season, and applying only to signed to the defendant at Toledo for transshipment in the lake trade, the Federal District Court for the Southern District of West Virginia held that this tariff was a "seasonal tariff," shipments made after July 12 each year, and that a new tariff, issued and filed in a subsequent year and effective before July 12, governed as to shipments for the following shipping season, although such shipments were made before it became effective.—*Toledo & Ohio Central v. Chesapeake, etc., Coal & Coke Co.*, 238 Fed., 629.

**Passenger Rightfully Ejected Has No Right to Re-Enter Train**

In an action for wrongful ejectment it appeared that the passenger refused to pay fare for her son, who was over five years of age, and both were ejected from the train. This was justified as the railroad could not lawfully transport the boy without charge, nor could it put him off the train and leave him with no one to care for him. The plaintiff testified that after she had been ejected she asked permission to re-enter the train and go into the Pullman car and get money from her niece to pay the fare, and that this request was refused. This statement was denied by the defendant's witnesses. The trial court refused to submit the question to the jury. The Texas Court of Civil Appeals held the trial court's refusal was proper; it knew of no authority sustaining the proposition that a passenger, who has been given every opportunity to procure the money to pay his fare before ejectment, either at a station or at a place other than a station at which the train is stopped for the purpose of putting him off, has the right to demand that he be allowed to re-enter the train for the purpose of procuring money to pay his fare, which he could have procured, and was given every opportunity to procure, before his ejectment.—*Fleck v. Missouri, K. & T. (Tex.)*, 191 S. W., 386.

**Status of Drivers as Passengers**

A uniform livestock contract read that the carriage of the attendant was to be without charge, other than the sum paid for the transportation of the animals, and an accompanying release stated that the attendant assumed all risk of injury. In an action by an attendant for personal injuries, the Circuit Court of Appeals, Sixth Circuit, holds that he was a passenger for hire, payable in money, not a mere gratuitous passenger, so that the limitation of liability was invalid. Although in such a case the federal courts are not bound by state decisions, the court cited, along with federal decisions, cases from the following states holding that, under similar contracts, the attendant of livestock is a passenger for hire: Ohio, Illinois, Pennsylvania, Michigan, Indiana, Kentucky, Maine, Virginia. It is the settled law of New York, however, that a person riding on a drover's pass is a gratuitous passenger (*Willcox v. Erie*, 162 App. Div., 94, 147, N. Y. Supp. 360, and cases therein cited).—*Tripp v. Michigan Central*, 238 Fed., 449.

**Corporation Taxes and Lessor Corporations**

The Circuit Court of Appeals, Fifth Circuit, holds that a railroad corporation which had leased all its property to another, which operated and maintained it, paying a fixed rental to the lessor, is not carrying on or doing business, within section 38 of the corporation tax act of 1909 imposing an excise tax on corporations carrying on or doing business during the preceding year, though the corporation maintained its corporate existence, and has an office where it receives the rental and distributes it among its stockholders, and though, as required by the lease, it has during the year made certain improvements on the property, paid for by the sale of old material or by certificates of indebtedness of the lessee. The expression "doing business" in that statute is one in common use, which has the same meaning applied to a corporation as to a natural person, and does not include one who has retired from business and is merely maintaining property leased by him to another. The question arose in four consolidated suits by four railroads which had leased their properties to the Gulf, Colorado & Santa Fe, to recover taxes paid under protest. Judgment was directed to be entered for each plaintiff.—*Jasper & Eastern v. Walker*, 238 Fed., 533.

**UNITED STATES SUPREME COURT****Lehigh Valley Water Line Divorced**

The United States Supreme Court on Monday affirmed the decree of the federal district court for the eastern district of Pennsylvania, sustaining an order of the Interstate Commerce Commission requiring the Lehigh Valley to relinquish control of its steamship line on the Great Lakes under the terms of the Panama Canal act. The court held that the federal courts were without authority to review or disturb the commission's orders in the case. It did not directly pass upon the question of whether there is competition between the railroad and the boat line.

The Commission ordered the Lehigh Valley as well as other railroads to dispose of its ownership of boats on the lakes, declaring that the ownership tended to restrict competition between the trunk lines and the boat lines. The Lehigh Valley suit was a test case, as its boat line was but a continuation of its rail transportation, the rail lines all being east of the lake ports. The Commission held that the rail line, however, was a competitor of its boat lines because it was a party to trunk line [all rail] freight tariffs.

Since the Interstate Commerce Commission decided this case it has recommended a modification of the law, giving the Commission more discretion in divorcing rail and water lines.

The Supreme Court says: "There is nothing for a court of equity to enjoin if all that the Commission has done is to decline to extend the time during which the boat line may be operated."

The Commission's decision in this matter was issued on May 7, 1915, similar decisions being issued at the same time against the Pennsylvania, New York Central, Rutland, Erie, Grand Trunk, Lackawanna and others.

**RAILWAY MILEAGE IN INDIA.**—During the year 1915-16, 605.90 miles of railway were opened to traffic, bringing the total mileage open up to 35,833 miles.

## Railway Officers

### Executive, Financial, Legal and Accounting

J. S. Dennis, assistant to the president of the Canadian Pacific at Calgary, Alta., has been appointed chief commissioner of colonization and development, and the position of assistant to the president has been abolished.

T. V. Pomar, general auditor of the Florida East Coast at St. Augustine, Fla., has been appointed controller and assistant treasurer; C. E. Woolford has been appointed auditor and E. Y. Quinn, Jr., has been appointed assistant auditor. Effective April 1.

### Operating

W. A. Hayes, assistant superintendent of the Chicago & North Western at New Butler, Wis., has been appointed superintendent at Baraboo, succeeding J. W. Doyle, resigned to go with a contracting company.

Elisha Lee, assistant general manager of the Pennsylvania Railroad lines east of Pittsburgh and Erie, at Philadelphia, Pa., has been appointed general manager to succeed S. C. Long, deceased. Effective April 1.

Ralph N. Begien, chief engineer of the Baltimore & Ohio at Baltimore, Md., has been appointed general manager of the Eastern lines of the system, with headquarters at Baltimore. Effective April 1. A portrait of Mr. Begien and a sketch of his railway career were published in the *Railway Age Gazette* of July 7, 1916, page 44.

D. W. McCarthy, acting assistant superintendent of the Middle and Pittsburgh divisions of the Buffalo, Rochester & Pittsburgh, has been promoted to assistant superintendent of the Middle and Pittsburgh divisions, with headquarters at DuBois, Pa., vice R. F. Dawson, resigned, and A. H. Stokes has been appointed assistant superintendent of the same divisions, with headquarters at Indiana, Pa.

C. T. Sponsel, roadmaster of the Northern Pacific, with headquarters at Garrison, Mont., has been appointed trainmaster of the Yellowstone division, with office at Forsyth, Mont. E. J. Brierly has been appointed trainmaster of the Fargo division, with office at Dilworth, Minn., succeeding P. R. Leo. James Finley has been appointed trainmaster of the St. Paul division, with headquarters at St. Paul, Minn.

A. J. Smith, announcement of whose appointment as superintendent of the Lake Erie & Western, with headquarters at Muncie, Ind., has already been made in these columns, was born at Pine Village, Ind., December 31, 1873. He entered railway service in October, 1889, with the Lake Erie & Western, and up to August, 1893, worked with a re-survey party, being then appointed relief agent and operator. On January 26, 1894, he was made chief clerk in the bridge and building department, and served in this capacity up to May 11, 1914, when he was appointed roadmaster, with headquarters at Tipton, Ind., which latter position he held until the time of his present appointment, as noted above, became effective. In addition to his new duties as superintendent he will continue to have jurisdiction over the maintenance of track and roadway, reporting direct to the chief engineer.

### Traffic

R. M. Ritchey has been appointed general agent of the Union Pacific, with headquarters at Topeka, Kan.

Howell Peeples has been appointed commercial agent of the Southern Railway System, with office at Baltimore, Md.

J. J. Foley has been appointed division freight and passenger agent of the Chicago, Milwaukee & St. Paul at Miles City, Mont.

T. P. Casey, commercial agent of the Chicago, Milwaukee & St. Paul at Cincinnati, Ohio, has been appointed division freight agent, with office at Chicago, Ill. J. J. McTague, commercial agent at Buffalo, N. Y., has been transferred to Cincinnati, Ohio, succeeding Mr. Casey.

Joseph Hellen, general passenger agent of the Southern Pacific, Louisiana Lines, with office at New Orleans, La., has been appointed general passenger agent of the Texas Lines, with headquarters at Houston, Tex., succeeding J. H. R. Parsons, recently promoted to vice-president and general manager of the Louisiana Lines. John T. Monroe, assistant general passenger agent of the Southern Pacific, Texas Lines, with office at Houston, Tex., has been promoted to general passenger agent of the Louisiana Lines, with headquarters at New Orleans, La., succeeding Joseph Hellen. John F. Sullivan, traveling passenger agent of the Southern Pacific, Texas Lines at Houston, has been appointed assistant general passenger agent, with the same headquarters as at present, succeeding John T. Monroe, promoted.

### Engineering and Rolling Stock

Harry A. Lane, assistant to the chief engineer of the Baltimore & Ohio at Baltimore, Md., has been appointed chief engineer. Effective April 1.

George Moth has been appointed division master mechanic of the Canadian Pacific, with office at Edmonton, Alta., succeeding A. E. Dales, transferred.

J. M. Borrowdale, superintendent car department Illinois Central, with headquarters at Chicago, Ill., has resigned, and the office will be abolished temporarily.

William Walker has been appointed acting division engineer of the Grand Trunk eastern lines with office at Montreal, Que., vice F. L. C. Bond enlisted for overseas service.

W. Trapnell, district engineer maintenance of way of the Baltimore & Ohio, with headquarters at Wheeling, W. Va., has been appointed chief engineer and superintendent of the Coal & Coke Railway, with office at Elkins, W. Va.

W. M. Jaekel, division engineer of the Southern Pacific at Bakersfield, Cal., has been transferred to Los Angeles, succeeding A. T. Mercier, promoted. J. P. Edwards has been appointed division engineer at Bakersfield, succeeding W. M. Jaekel.

Noah Johnson, assistant chief engineer of the Wabash Railway, with headquarters at St. Louis, has been appointed engineer maintenance of way of the Peru division, with headquarters at Peru, Ind., succeeding R. S. Charles, resigned to engage in other business.

Paul Witherspoon, district bridge inspector on the Pittsburgh division of the Baltimore & Ohio at Pittsburgh, Pa., has been promoted to assistant division engineer and supervisor of the Staten Island Lines, with headquarters at St. George, Staten Island, N. Y.

A. R. Ruiter, general foreman of locomotives, Chicago, Rock Island & Pacific, at Chicago, Ill., has been appointed master mechanic of the Kansas City Terminal and St. Louis divisions, with headquarters at Armourdale, Kan., succeeding J. W. Cuyler, transferred with same title to the Kansas division, with office at Herington, Kan., vice R. J. McQuade, transferred.

D. P. Kellogg, superintendent of shops of the Southern Pacific at Los Angeles, Cal., has been appointed superintendent of motive power at Sacramento, succeeding T. W. Younger, resigned. O. B. Schoenky, superintendent of shops, Sacramento, has been transferred to Los Angeles, succeeding Mr. Kellogg. A. P. Neff, general foreman of locomotives at Los Angeles, has been appointed superintendent of shops at Sacramento, succeeding Mr. Schoenky.

C. R. Diemar, assistant engineer in the office of the district engineer, maintenance of way of the Cincinnati, Hamilton & Dayton, with headquarters at Cincinnati, Ohio, has been appointed division engineer of the Newark division of the Baltimore & Ohio, with headquarters at Newark, Ohio, succeeding J. Tordello, transferred. John Mayer, assistant division engineer of the Baltimore & Ohio at Chillicothe, Ohio, has been transferred to the office of the engineer maintenance of way of the Cincinnati, Hamilton & Dayton, succeeding Mr. Diemar.

A. M. Currier, assistant engineer of the New York Central Lines West of Buffalo, with office at Cleveland, Ohio, has been appointed principal assistant engineer, with the same headquarters. He was born at Iowa City, Ia., on August 31, 1881, received his education at the University of Iowa, and entered railway service with the Chicago Transfer & Clearing Company

in 1900. In 1902 he went to the Union Pacific, and in the following year he was employed in the engineering department of the Chicago, Burlington & Quincy. From 1905 to 1908 he served in various capacities in the engineering department of the Missouri Pacific, going from that road to the New York Central, where he has been employed ever since.

### OBITUARY

W. C. Walz, division master mechanic of the Chicago, Burlington & Quincy at Hannibal, Mo., died at that place on March 23.

A. T. Nafis, formerly special agent of refrigeration equipment of the Star Union Line, and up to 1909 for 38 years in the employ of this company, died at his home at Evanston, Ill., after a brief illness of pneumonia, at the age of 77.

H. E. Yarnall, secretary and treasurer of the Midland Valley, was shot and killed by a burglar at his home in Philadelphia, Pa., on March 25. Mr. Yarnall was born on March 7, 1867, at Philadelphia, and began railway work in February, 1886, as clerk in the purchasing agent's office of the Lehigh Valley. From November, 1894, to July, 1902, he served as local treasurer and purchasing agent of the Choctaw, Oklahoma & Gulf at McAlester, Okla., and at Little Rock, Ark. He was then assistant secretary and assistant treasurer at Chicago of its successor, the Chicago, Rock Island & Pacific, and since March, 1904, was secretary and treasurer of the Midland Valley, at Philadelphia, Pa.

Simon Cameron Long, general manager of the Pennsylvania Railroad lines east of Pittsburgh and Erie, with headquarters at Philadelphia, Pa., died suddenly on March 25, while traveling on



S. C. Long

a train from Philadelphia to his home at Merion, Pa. He was born on September 7, 1857, near Harrisburg, Pa., and was educated in the public schools of Pine Grove, and at Lafayette College, from which he graduated in June, 1877, with the degree of C. E. He began railway work with the Philadelphia & Reading upon leaving college, and went to the engineering department of the Pennsylvania Railroad April 3, 1881, and in April, 1882, he was transferred to the general superintendent's office at Altoona. From November 25, 1882, until May of the following year he was assistant supervisor in the Pittsburgh yard when he was transferred in the same capacity to Walls, now Pitcairn, and in August, 1884, he was again transferred in the same capacity to the Philadelphia yard. He was promoted to supervisor in February, 1885. From November, 1889, to January, 1893, he was assistant engineer of the Delaware division, and was then transferred to the Maryland division. On August 1, 1900, he became superintendent of the Bedford division, and in May, 1902, was transferred to the River division of the Allegheny Valley Railroad. Mr. Long was appointed superintendent of the Pittsburgh division in January, 1903; from April, 1907, to March, 1911, he was general superintendent of the Western Pennsylvania division, Pennsylvania Railroad, and then was promoted to general manager of the Pennsylvania Railroad lines east of Pittsburgh and Erie. The board of directors of the company, at a meeting on March 28, adopted a minute on the death of Mr. Long in which they say: "Mr. Long's service was characterized by close application to his duties and an intelligent handling of the various problems brought to him. Unswerving in loyalty to the company, and conspicuous for his popularity in the service, he was peculiarly fitted for the important and arduous post of general manager; and his administration of that office was as creditable to himself as it was advantageous to the company's interests. . . ."

## Equipment and Supplies

### LOCOMOTIVES

THE NEW YORK, CHICAGO & ST. LOUIS contemplates coming into the market shortly for locomotives.

SWIFT & Co., St. Joseph, Mo., has ordered one six-wheel switching locomotive from the Baldwin Locomotive Works.

THE WYANDOTTE TERMINAL RAILROAD has ordered one six-wheel switching locomotive from the Baldwin Locomotive Works.

THE CAMPBELL'S CREEK COAL COMPANY, Cincinnati, Ohio, is in the market for a small four-wheel switching locomotive weighing about 25 or 30 tons.

THE RICHMOND, FREDERICKSBURG & POTOMAC, reported in the *Railway Age Gazette* of February 9 as being in the market for locomotives, has ordered 6 Pacific, one six-wheel switching and one eight-wheel switching locomotives from the American Locomotive Company. The Pacific type locomotives will have 26 by 28-in. cylinders, and a total weight of 298,000 lb. The six-wheel switching locomotive will have 21 by 28-in. cylinders, and a total weight of 172,000 lb., and the eight-wheel switching locomotive will have 24 by 28-in. cylinders, and a total weight of 172,000 lb.

### FREIGHT CARS

THE COLORADO & WYOMING is inquiring for 200 car bodies.

THE UTAH RAILWAY is reported as about to buy 600 coal cars.

THE UNION RAILROAD is inquiring for 750 50-ton gondola cars.

THE INDIAN REFINING COMPANY is reported in the market for 75 tank cars.

THE LORAIN STEEL COMPANY is inquiring for 25 to 30 gondola cars.

THE CINCINNATI ABATTOIR COMPANY is reported in the market for 50 beef cars.

THE WEST KENTUCKY COAL COMPANY is asking prices on 100 to 300 hopper cars.

THE MICHIGAN ALKALI COMPANY is reported in the market for 18 70-ton hopper cars.

THE OGDEN, LOGAN & IDAHO will issue inquiries in the near future for about 200 freight cars.

THE CARNEGIE STEEL COMPANY has ordered 20 70-ton dump cars from the Standard Steel Car Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 800 refrigerator cars from the American Car & Foundry Company.

THE CHICAGO & NORTH WESTERN has ordered 2,000 50-ton steel frame gondola cars from the American Car & Foundry Company.

THE RUSSIAN GOVERNMENT was incorrectly reported in last week's issue as having ordered 200 cars from the Canadian Car & Foundry Company. This order should have been given as 2,000 cars.

### PASSENGER CARS

THE ST. LOUIS-SAN FRANCISCO is reported as inquiring for 30 chair cars.

THE DULUTH & IRON RANGE is inquiring for prices on 11 passenger cars.

### SIGNALING

THE UNION PACIFIC is to instal automatic block signals on its line from Point of Rocks, Wyo., to Wamsutter, 53 miles; from Hermosa, Wyo., to Buford, 12 miles, and from Archer, Wyo., to Pine Bluffs, 35 miles. These signals are model 2A, base-of-mast, furnished by the General Railway Signal Company.

## Supply Trade News

The Mott Sand Blast Manufacturing Company, Inc., of New York, will occupy its new plant in the borough of Brooklyn, N. Y., about April 1.

The Q & C Company, New York, has opened a branch office in St. Louis, Mo., No. 1942 Railway Exchange building, under the direction of John L. Terry.

M. B. Meyers, assistant to the vice-president of the American Manganese Steel Company, has been appointed sales manager, with headquarters at Chicago, Ill.

W. H. Wood has severed his connection with the Baltimore & Ohio, to enter the employ of the Combustion Engineering Corporation as engineer of tests and research.

The McCord Manufacturing Company of Detroit will move its New York office from 50 Church St. to room 1416, City Investing building, 165 Broadway, about April 15.

E. J. Caldwell, in charge of the railroad sales department of the Barrett Company in the Chicago territory, has been made manager of the general railroad sales department of the Barrett Company, with headquarters at New York, succeeding E. H. Poetter, who has been placed in charge of the export department of this company, as announced last week. Mr. Caldwell was born in Urbana, Ill., and entered railroad service with the Illinois Central in 1898 as a stenographer for the supervisor of track at Champaign, Ill. In the following year he became clerk for the trainmaster at Freeport, Ill., and in 1900 was stenographer for the division superintendent at the same point. Late in the same year he became a stenographer in the office of the vice-president of the Seaboard Air Line at Portsmouth, Va. The following year he returned to the Illinois Central as secretary to the general superintendent of transportation, and later in the same year he became secretary to the general superintendent of the Chicago, Rock Island & Pacific at Little Rock, Ark. In the fall of 1902 he became secretary to the chief engineer of the Illinois Central. Early in 1904 he was appointed secretary to J. T. Harahan, second vice-president of the Illinois Central, and accompanied Mr. Harahan when he was elected president of the same road. In 1910 he became acting chief clerk in the office of the president. In March, 1911, he left railway service to become a railroad representative of the Barrett Company in Chicago, and later organized and was placed in charge of the first railroad sales department of this company.



E. J. Caldwell

William Leighton, formerly with the O'Malley-Bear Valve Company, Chicago, has resigned to take a position with the Oxweld Railroad Service Co., Railway Exchange building, Chicago.

Cyrus H. Loutrel, factory manager of the National Lock Washer Company, Newark, N. J., for the past six years, has been elected president of the company, to succeed the late William C. Dodd, who died suddenly March 12.

L. E. Hassman has been appointed representative in southern territory for Brown & Co., Inc., of Pittsburgh, Pa., with headquarters at New Orleans. Mr. Hassman since February, 1912, has represented the railroad department of the H. W. Johns-Manville Company in New Orleans.

H. A. Waldron, of the selling force of the H. W. Johns-Manville Company's general railroad department, at Chicago, has resigned to become sales manager of the New York office of the Stromberg Motor Devices Company.

### Hunt-Spiller Manufacturing Corporation

J. G. Platt, sales manager of the Hunt-Spiller Manufacturing Corporation, Boston, Mass., and Frank M. Weymouth, assistant to president, have been elected vice-presidents of the company.

Mr. Platt has been sales manager of the Hunt-Spiller Manufacturing Corporation, Boston, Mass., since June 1, 1912. He was born at Zanesville, Ohio, February 11, 1874. His parents moved to Baltimore in 1879, and he was educated in the public schools of that city. He entered railway service when he was not quite 15 years of age as a messenger for the Baltimore & Ohio. In January, 1890, he became an apprentice in the locomotive department of the same road, later entering the drafting room as a locomotive draftsman in 1894. On February 1, 1901, he was transferred to Newark, Ohio, as chief draftsman of the Lines West, but on December 20, 1902, he left the Baltimore & Ohio to accept the position of assistant to the master mechanic of the Erie at Jersey City, N. J. He was transferred to Meadville, Pa., April 1903, as engineer of tests. On February 1, 1907, he left railway service and became master mechanic of the Franklin branch of the American Steel Foundries, with which company he remained until June 1 of the same year, when he accepted a position with the Hunt-Spiller Manufacturing Corporation as mechanical representative, later becoming sales manager, as noted above.



J. G. Platt

Mr. Weymouth was born in Boston, January, 1873, and was educated in the public schools of that city, after which time, until 1913, he held various positions in manufacturing industries. In February, 1913, he accepted the position of assistant to the president of the Hunt-Spiller Manufacturing Corporation, and will continue in that capacity, in addition to being vice-president.



F. M. Weymouth

Lambert T. Ericson, formerly engineer of the American Creosoting Company, New York City, has become affiliated with the Jennison-Wright Company, Toledo, Ohio, as contracting engineer. George L. Luck, until recently associated with the Hastings Pavement Company, New York City, has been placed in charge of street paving sales of the Jennison-Wright Company.

Blake C. Hooper, district sales manager of the O'Malley-Bear Valve Company, Chicago, Ill., has resigned to become the head of a department, which the Paul J. Kalman Company, St. Paul, Minn., has created to represent the Oxweld Railroad Service Company, the Boss Nut Company and the National Car Equipment Company.

John Kasson Howe, director of the Osgood Company, Marion, Ohio, and its eastern sales representative, died at his home in Albany, March 4. The Osgood Dredge Company of Albany, N. Y., was organized by Mr. Howe in 1883, and this company obtained the original patents on the boom type dredge, which general design is followed by all the leading dredge builders at this time. Mr. Howe was secretary and treasurer of the Osgood Dredge Company until its consolidation with the Osgood Company, Marion, Ohio, when he became a director in the latter company and its eastern sales representative.

The Vanadium-Alloys Steel Company, of Pittsburgh and Latrobe, Pa., announces that arrangements have been completed whereby the following firms will represent the company in the sale of its high speed steel and its alloy and carbon tool steel: E. T. Ward's Sons, Boston, Mass.; George Nash Company, New York and Chicago; Field & Co., Inc., Philadelphia. A large stock of high speed steel in the most generally called for sizes will be carried at the various warehouses. These stocks are in addition to the stock carried by the Vanadium-Alloys Steel Company at its mill at Latrobe and its Pittsburgh warehouse.

At a recent meeting of the stockholders of Harrison Brothers & Co., Inc., of Philadelphia, the stockholders agreed to accept an offer made by the Du Pont Company of Wilmington, Del., and the paint firm has become one of the Du Pont's subsidiaries. The transfer to new owners will bring no radical change in the conduct of the paint business. This will be continued by the new owners, and the products hitherto turned out by the Harrisons will continue to be made by virtually the same organization. Expansion is expected in the manufacture of paints, colors, varnishes and pigments, as well as chemicals, for the Du Pont interests will bring to the new organization resources and experience that will increase the efficiency of the plants. The business will be conducted by a new Pennsylvania corporation to be known as "Harrisons, Inc.," a charter for which has been applied for. The incorporators are Lamont du Pont, Dr. Charles L. Reese and Charles A. Meade, of the Du Pont Company; A. R. Glancy and Wm. Richter, secretary of the Harrison company.

## TRADE PUBLICATIONS

**TURRET LATHES.**—A booklet recently issued by the Gisholt Machine Company contains reprints of five advertisements of Gisholt turret lathes from the American Machinist.

**COOLING TOWERS.**—A looseleaf booklet recently issued by the Cooling Tower Company, Inc., of New York, describes and illustrates some of the forms of cooling apparatus made by that company.

**SINGLE-PHASE MOTORS.** 1/6 to 7½ hp., are described in bulletin No. 41,514 of the Sprague Electric Works of General Electric Company, New York. The motors are of the BSS type, varying speed, and represents the latest step in the commercial development of small single phase motors. Numerous illustrations are used to show the application of BSS motors to various machines.

**SPRAYING EQUIPMENT.**—A catalogue recently issued by the Spray Engineering Company, Boston, Mass., gives a condensed summary of the principal Spraco developments. The booklet illustrates and describes the Spraco system for cooling condensing water, Spraco air washing and cooling equipment for electrical machinery, apparatus for paint spraying, sprinkling, etc.

**DELCO-LIGHT** is the title of a bulletin describing a small gas engine and generator unit and storage battery forming a complete plant for electric lighting in isolated locations. A supplementary bulletin illustrates and describes an installation of this apparatus at a railway station and office in a small town. The outfit is manufactured by the Domestic Engineering Company, Dayton, Ohio.

**STEAM ROAD ELECTRIFICATIONS.**—This is the title of a booklet published by the Ohio Brass Company, Mansfield, Ohio. Well chosen photographs and short explanations describe seventeen steam railroad electrifications on which Ohio brass materials have been used. The book is really a short review of all electrification work in this country. The photographs are excellent and the composition of the booklet is quite a work of art.

## Railway Construction

**ALABAMA GREAT SOUTHERN.**—See Southern Railway.

**ATLANTA & WEST POINT.**—A contract has been given to the Brooks-Galloway Company, Atlanta, Ga., to build second track from College Park, Ga., to Palmetto, about 14 miles. New station buildings will also be built at Palmetto and Hogansville, Ga. (March 16, p. 473.)

**ATLANTIC & NORTHWESTERN.**—A charter has been granted to this company in Virginia with \$5,000,000. The plans call for building a line to connect Harper's Ferry, W. Va., with Newport News, Va. W. B. Emmert, president; P. Dulaney, vice-president, and B. F. Mays, secretary-treasurer, Washington, D. C.

**BARTLETT-WESTERN.**—This Texas road, extending from Bartlett to Florence, 20 miles, has been sold to Tom Cronin, of Palestine. Mr. Cronin is a well known railroad contractor, and he purposes to extend the line northwest from Florence to Lampasas, about 25 miles, and east from Bartlett to Rockdale, about the same distance. These proposed extensions will connect with the International & Great Northern and the Santa Fe.

**BIRMINGHAM SOUTHERN.**—This company has under consideration the question of building an extension, it is said, of about 9 miles to the Warrior river.

**BRYAN & CENTRAL TEXAS.**—This company will award contracts about April 15 for the construction of an extension from Whittaker, Tex., to Wilcox, about seven miles. The work includes the construction of about seven bridges, aggregating about 1,100 ft. in length.

**EVANSVILLE & INDIANAPOLIS.**—This company has awarded a contract to the W. E. Callahan Construction Company, Omaha, Neb., for extensive realignment work between Terre Haute, Ind., and Evansville, a distance of about 150 miles.

**JEFFERSON & NORTH WESTERN.**—This company has commenced work on an extension from its present terminus at Camp, Tex., to Marietta, a distance of approximately six and one-half miles. Three pile trestles will be constructed, and the grading will total about 900,000 cu. yd., the contract for which has already been awarded. The balance of the work will be done by the company's own forces.

**SHAW & SOUTHWESTERN.**—This company is now arranging to make preliminary survey for a line to be built from Shaw, Miss., southwest to Busey and thence to a point a mile west of Busey. Contracts for the work are expected to be let this summer. There will be a 90-ft. steel bridge over the Bogue Phaliah at Busey. The company expects to develop a traffic in coal and cotton. J. C. Walker, president, Shaw; Johnson & Johnson, engineers, Memphis, Tenn.

**SOUTHERN RAILWAY.**—Contracts for the construction of 26.3 miles of double track on the Alabama Great Southern between Birmingham, Ala., and Meridian, Miss., have just been let by the Southern Railway. Between Burstall, Ala., and Vance, 21.8 miles of second track will be laid parallel to the present line. Between Toomsaba, Miss., and Russell, 4.5 miles, a new double track line involving heavy grading and giving improved grades with reduced curvature will be constructed. This work will complete the double track from Irondale, through Birmingham, to Vance, and from York to Meridian.

**SPOKANE, PORTLAND & SEATTLE.**—This company has awarded a contract to Porter Brothers, Spokane, Wash., for the lining with concrete of a tunnel 2,400 ft. long, four miles west of Kahlottus, Wash., and another 800 ft. long near Hooper. The contract price for the work is \$75,000.

**TEXAS RAILROADS.**—R. S. Sterling, Houston, Tex., has been granted a charter for a steam line to be built from the Goose Creek oil fields to Dayton, Tex., about 22 miles. At the latter point it will connect with the Southern Pacific and also with the Trinity Valley & Northern, which is a lumber road running between Dayton and Fouts.

## RAILWAY STRUCTURES

**BALDWIN, N. Y.**—The Long Island Railroad has given a contract to C. M. Van Tassel, New York, to build the new passenger station at Baldwin. The cost of the improvement will be about \$15,000. (April 21, 1916, p. 927.)

**CHICAGO, ILL.**—The Chicago & North Western has let a contract to the C. W. Gindele Company for an extension of a one-story machine shop building approximately 183 ft. by 208 ft. There will also be extensions to two store buildings, one 50 ft. by 200 ft., two stories in height, and the other 58 ft. by 200 ft., one-half of which will be two stories in height. Work will be started as soon as material can be assembled.

**FINDLAY, ILL.**—The Chicago & Eastern Illinois has awarded a contract to John J. O'Heron & Co., Chicago, Ill., for the construction of a bridge over the Okaw river, just north of this point. There will be three 100-ft. and two 50-ft. concrete arches, for which about 17,000 cu. yd. of concrete will be required. The cost of this structure, including the necessary grading for the approaches, will be \$275,000.

**GRAND ISLAND, NEB.**—The Chicago, Burlington & Quincy has commenced the erection of a reinforced concrete bridge across the Platte river between this point and Phelps to replace an old structure. There will be four 20-ft. and twenty-six 25-ft. spans of concrete slabs, and six 60-ft. spans of steel deck plate girders on concrete piers. The new bridge will have a grade 11 ft. higher than the present structure, and the plan is to straighten and raise the grade of approximately five miles of tracks on the approaches. The cost of this work is placed at \$100,000.

**LANETT, ALA.**—The Atlanta & West Point and the Western Railway of Alabama have been preparing plans under an order of the Public Service Commission of Alabama for a new station at Lanett, but no definite action has yet been taken towards the construction of additional structures at that place.

**MARSEILLES, ILL.**—The Chicago, Rock Island & Pacific has awarded a contract to T. S. Leake & Co., Chicago, Ill., for the construction of a one-story passenger depot of brick and stucco construction, to cost about \$20,000. The plumbing contract was let to Johnson & Beck, Topeka, Kan.

**NAMPA, IDAHO.**—The Oregon Short Line is improving its terminal facilities at this point by the construction of a six-stall engine house, with two additional stalls to serve as a machine shop; a boiler house, a 92-ft. turntable, an oil house, a two-stall engine pit, an ash pit, etc. The work, which is being done by company forces, will cost about \$100,000.

**PALESTINE, ILL.**—The Illinois Central is adding facilities for its mechanical department at this point. The work includes the addition of six 100-ft. stalls to the present roundhouse; the construction of a brick, combination office and storehouse, 30 ft. by 70 ft., with a two-story portion, 30 ft. by 36 ft., to be used for wash, locker and rest rooms for the enginemen, and a machine shop and power house, 40 ft. by 100 ft., of brick construction, with steel trusses and Federal cement tile roof. Several smaller buildings, among them a brick sand drying house, a wet sand bin, a cinder pit with double Robertson conveyors and a concrete stack, 54 in. by 125 ft., will also be built. The cost of the improvements will be about \$100,000.

**RICHMOND, VA.**—Contracts have been let to Cornell, Young & Company, Macon, Ga., for earth work and masonry work to be carried out in connection with improvements for the Atlantic Coast Line at the Byrd street station in Richmond. Plans for a brick warehouse and other structures have not yet been completed, but work on the buildings will be started during the summer.

**SPOKANE, WASH.**—Porter Brothers, Spokane, have been awarded a contract by the Spokane & Inland Empire to renew the east and west approaches to Rock Creek bridge, near this city. The cost of the work is estimated at \$35,000.

**TERRE HAUTE, IND.**—The Evansville & Indianapolis is making improvements to its mechanical facilities, which include the construction of a frame enginehouse, machine shop, storeroom, blacksmith shop, boiler room, train and enginemen's rest room and office building. The approximate cost is about \$22,000. Company forces are doing the work.

## Railway Financial News

**CHICAGO & NORTH WESTERN.**—This company has been authorized by the Illinois Public Utilities Commission to issue \$1,000,000 equipment trust gold certificates under its trust agreement, and also an additional \$900,000. Of the \$10,000,000 equipment trust notes of 1913, \$4,000,000 has been issued to June 30, 1916, leaving \$6,000,000 still to be used for equipment obligations.

**CHICAGO, ROCK ISLAND & PACIFIC.**—Judge Hough, in the Federal District Court, at New York, has authorized the receiver to make payments amounting to about \$3,000,000, of which the largest item was \$1,898,820, for interest on the refunding mortgage bonds. The receiver is authorized to renew the Central Trust Company's loan of \$2,500,000, and also to renew series "A" of the certificates issued by him on April 30 last, and series "B" which were due this month.

**CINCINNATI, FINDLAY & FORT WAYNE.**—Judge Hollister, in the United States District Court, at Cincinnati, on March 12, appointed J. B. Carothers receiver of the road. This company is operated by the Cincinnati, Hamilton & Dayton, which has been in the hands of receivers since July 2, 1914.

**LEHIGH VALLEY.**—The New York Public Service Commission, second district, has authorized the Lehigh-Buffalo Terminal Railway Company to mortgage its property for \$5,000,000, the bonds to bear 4½ per cent interest and to be sold at 95. The proceeds will be used towards discharging \$3,740,000 of 5 per cent debentures outstanding; to discharge an indebtedness of \$301,984 to the Lehigh Valley Railroad Company and for further expenditures of \$1,067,655 on the terminals at Buffalo.

**LONG ISLAND.**—Minority stockholders, represented by the committee of which E. R. Dick is chairman, have agreed to the offer of the Pennsylvania that they accept 5 per cent debenture bonds of the Long Island in place of their stock holdings. About 9,100 shares have been deposited already and another block of 13,000 is promised; and it is expected that the readjustment plan will be declared operative very soon. The total of debenture bonds to be issued under this feature of the plan is \$5,202,100, to run for twenty years.

**NEW YORK, CHICAGO & ST. LOUIS.**—The Illinois Public Utilities Commission has authorized this company to issue equipment certificates for \$3,800,000 with which to buy locomotives and freight cars.

**NEW YORK, NEW HAVEN & HARTFORD.**—The floating debt has been extended, for one year, by increasing the annual interest burden about \$215,000. Subject to the approval of the Connecticut Public Utilities Commission, the company has sold \$45,000,000 of one-year 5 per cent collateral trust notes to a group of bankers composed of J. P. Morgan & Co., the First National Bank, the National City Bank, Kidder, Peabody & Co., and Lee, Higginson & Co. These notes will retire \$43,000,000 of 4½ per cent notes, involving an increase of one-half per cent per annum in the interest charge. Of the maturing notes, \$25,000,000 were issued by the New Haven and \$20,000,000 by the New England Navigation Company. Of the latter \$2,000,000 has been retired. The New Haven owns all of the stock of the Navigation Company. If the proper legislative authority can be secured in Connecticut and Massachusetts it is expected that before the maturity of the new issue on May 1, 1918, the company will be in a position to undertake a comprehensive financing plan involving the refunding of its short-term issues with long-term bonds.

**PERE MARQUETTE.**—The reorganization managers have sold to Harris, Forbes & Co. \$6,000,000 Pere Marquette first mortgage 5 per cent bonds, due in 1956.

**TEXAS & PACIFIC.**—At the annual meeting of this company, J. L. Lancaster, J. H. McClement, Finley J. Shepard, Samuel Sloan and Alvin W. Krech were elected directors to succeed R. M. Galloway, Howard Gould, E. J. Pearson, Henry Ickelheimer and Seward Prosser, resigned. Other directors were re-elected for a term of two years.